E-COMMERCE

V SEMESTER

(UG-CCSS – SDE)

OPEN COURSE

(For candidates with Programmes other than BBA and B Com)

(2011 Admission)

UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

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STUDY MATERIAL

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V Semester

E-COMMERCE

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MODULE 1

INTRODUCTION TO E-COMMERCE

E-Commerce is a latest technology related with commerce and computer. Commerce is the exchange or transformation or buying and selling of entities (goods or commodities) on a very large scale involving transportation from one place to another. [Webster]E- Commerce is the process of doing business online. Or we can say that E-commerce is to conduct business by using the IT (Information technology, i.e., computer technology and electronic communication) it is the buying and selling of items or goods or services on the Web using electronic communication and digital information processing technology.EDI or Electronic Data Interchange is an early form of e-commerce. Its high cost, use of proprietary standards etc. hampered the spread of e-commerce.

E-commerce is the process of doing business electronic. It changes the entire business scenario due to the powerful innovation of Internet, which is spreading fast through the world. The power of Internet as a global access was felt with the introduction of the World Wide Web (WWW) in 1994. This global network makes global relations with the companies made easier. It is predicted that, in the near future the digital economy will overtake the traditional economy of all developed countries.

E-commerce is a composite of technologies process and business strategies that foster the instant exchange of information within between organization. E-commerce strengthens relationship with buyers make it easier to attract new customer, improves customer responsiveness and open new markets on a global scale. E-commerce is the application of various communication technologies to provide the automated exchange of business information with internal and external customer, suppliers and financial institutions

E-commerce V/s Traditional Commerce

E-commerce is an extension of traditional commerce, which is concerned with the activities of business, industry and trade including the exchange of goods, services, information and money. It has the same essential ingredients of ordinary commerce. The major difference between e-commerce and commerce is that with e-commerce, these exchanges of goods and services are carried out over the web instead t of the traditional physical act of going to a trader for goods and services. Now that a large number of people have access to the internet and it is a good platform for the development of e-commerce. Successful E-commerce strategies allow organizations distinct advantages in terms of both cost and revenues- the fundamentals of all business. This is because cost can be cut immensely as retail outlets are not required. Most of the cost associated with traditional high capital business is eliminated and or transformed into profit in the Internet environment.

DIFFERENCE BETWEEN E-COMMERCE AND TRADITIONAL COMMERCE

	BASIS	E-COMMERCE	TRADITIONAL SYSTEM
1	Reduce Data Error	Doesn't involve data at multi points. Data goes directly from one computer to another Computer without involving human being	The buyer and seller create purchase order on their system and send it to their trading partner. The receiver/seller then re-enter the same information on the computer, which will create data error
2.	Reduce cost	Initial cost of E-commerce is very high as compared to paper process but over a long period of time, it is very effective	Time is directly ;linked to saving the money. There is repetition of same work at every level and it involves a lot of wastage of time and if the error is arisen that will lead to more wastage of money.
3.	Reduce Paper work	E-commerce data in the electronic form make it easy to share it across the organization	It requires re-entry of data at each level and requires lot of time. So the peak time is wasted in re-entering and printing of the reports
4.	Reduce Processing cycle time	E-commerce reduces the processing cycle time of complete cycles as the data is entered the system, it is simultaneously Processed	When the buyer order in a paper format, the data is re-entered in to the Sellers's computer and then only processing can take place which is a time consuming process.
5.	Reduce labor	No need to maintain large number of employees, instead there arises the need to manage them more efficiently	Need to maintain a large number of employees because one-third of labor force is employed to fulfill orders from customers.

E-Business and E-commerce

Internationally both the terms can be interchanged and having the same concepts, that is , doing business online. However, EB is the term which is derived from e-commerce. However there is little difference between these two concepts. Electronic commerce is a business to business [B2B] initiative aimed at communicating business transaction documents on a real time or near real time basis between known trading partners such as suppliers, customers etc. E-commerce might be considered as the use of the Internet as a company's primary

or exclusive portal to its customers. Amazon or e-bay conducts all of their business online and their products and services are exclusively those which can be sold online.

On the other side e-business refers to companies for which internet is one of several channels to customers and perhaps not even the primary one. Banks are a classic example, as are companies, which have internet storefronts. But all such entities have other primary channels to distribute their products. The main distinctions between E-commerce and E-Business are

E-Commerce	E-Business
Open system [statistics]	Closed System
Not secured	Secured
Deals more with technology	Deals with processes needed to facilitate e-commerce
Does not involve the use of EDI	Used EDI
Always operate on Internet	Always operates on intranet
Involves all types of commerce transaction	Involves explicitly business transactions
Used for small and bulky transaction	Used for bulky transaction
Focused on Business to consumer activities	Focused more on business to business activities
e-commerce is an extension of a traditional business model	e-business is an online business only

History of E-commerce

Most people don't realize that e-commerce and its underlying technology have been around for about forty years. The term e-commerce was originally conceived top describe the process of conducting business transactions electronically using technology from the Electronic Data Interchange [EDI] and Electronic Funds Transfer [EFT].EDI is widely viewed as the beginning of E-commerce. Large organizations have been investing in development of EDI since sixties. It has not gained reasonable acceptance until eighties. EDI is a set of standards developed in the 1960's to exchange business information and do electronic transactions. At first there were several different EDI formats that business could use, so companies still might not be able to interact with each other. Electronic Data interchange [EDI] allowed different companies to perform electronic dealings with one another.

The internet was conceived in 1969, when the Advanced Research Projects Agency [a Department of Defense Organization] funded research of computer networking. The Internet could end up like EDI without the emergence of World Wide Web in 1990s.The web became a popular mainstream medium (perceived as the fourth mainstream medium in addition to print, radio and TC) in a speed, which had never seen before. The web users and contents were   increasing at an accelerated rate. Besides the availability of technical infrastructures, the popularity of the web is largely attributed to the low cost access and simplicity of HTML authoring, which are the obstacles of EDI Development. The Internet and the Web have overcome the technical difficulty of EDI, but it has not solved the problem of slow development of E-commerce standards/.

XML, as a Meta Markup Language, provides a development tool for defining format of data interchange in a wide variety of business communities. Web services offer a flexible and effective architecture for the implementation. There is no doubt that XML and the web services will shape the course of E-commerce in the years to come.

The next important phase in the History of E-commerce was the development of Mosaic Web browser in 1992.The Web Browser was soon given the form of a browser which could be downloaded and was named as Netscape.

The next important milestone in e-commerce was the development of Napster. Napster was an online application used to share music files for free. Many consumers used the site and were dictating what they wanted from the Industry. Napster allowed people to download music from the Internet for free.

The development and adaptation of DSL and Red hat Linux respectively, again benefited the process of online business transaction. The year 2000, saw a major merge between AOL and Time Warner which marked another important step towards the development of E-commerce.

The World wide popularity of Internet has resulted in the stable development and overwhelming acceptance of E-Commerce. E-Commerce provides with a rich online transaction experience. Business to Business is the largest E-Commerce in the present time. Peer to Peer and Consumer to Consumer are two important types of E-Commerce.

Electronic Data Interchange [EDI]

It enables the firms to exchange business information faster, more cheaply and accurately than possible using paper based documents. The whole point of EDI is to enable your company to communicate with other applications that are always on the distal end of some long distance link and always "black boxes" from the viewpoint of your own network and applications.EDI is the electronic exchange of business documents in a standard, computer processable, universally accepted format between trading partners. It is a standard for the electronic exchange of business documents, such as invoices and purchase orders. Edi consists of standardized electronic message formats for common

business documents such as purchase order, request for quotation, bills of lading, invoice and similar documents. These electronic documents enables in one company to talk to computers in another company without producing paper documents. To set up EDI, a company must have computerized accounting records and establish trading partners who agree to exchange EDI transactions. Use of electronic data interchange thus eliminates the human effort required to read, sort and physically transport such documents. It requires the co-operation of trading partners. It also requires various mechanisms, which guarantee that the data, which leaves the boundaries of one corporation, arrives at the gates of the other without changing in any particular.

Benefits of EDI

- Lower Processing cost
- Improves the overall quality of data
- Helps to manage information system effectively and efficiently
- Helps to reduce inventory level
- Transfer of information from computer to computer is automatic and data is entered only at the source
- Customer relations can be improved
- Business relations with trading partners can be improved

Working of EDI

1. Preparation of electronic documents

The first step in the sequence of EDI is the collection of information and data. The way to collect the required information should be same as the way to do it in the traditional system. However, instead of printing out the data on paper in tradition, the system has to build an electronic file or database to store those data. In the case of companies who already use computer to issue their documents like purchase orders, they may already have some sort of databases which store those information, then they fan start with the next step described below.

2. Outbound translation

The next step is to translate the electronic file or database in to a standard format according to the specification of the corresponding document. The resulting data file should contain a series of structured transactions related to the purchase order for example. If more than one company is involved in the particular transaction, individual files should be produced for each of them.

3. Communication

Then the computer should connect and transmit those data files to the pre arranged Value Added Network [VAN} automatically. The VAN should then process each file and route the appropriate electronic mailboxes according to the destination set in the file.

4. Inbound translation

The designated company should be able to retrieve the file from their electronic mailboxes in a constant period, and then reverse the process by translating the file from the standard format into the specific format required by the company's application software.

5. Processing the electronic documents

The internal application system of the designated company can process the received documents now. All the resulted documents corresponding to the received transaction should use the same processes or steps to transmit back to the transaction initiator; the whole cycle of the electronic data interchange can they be completed.

Importance, features and benefits of E-commerce:

Importance of E-commerce

Through, E-commerce, operating efficiency of the business firm will definitely improve and which in turn strengthen the value and service given to customers and provide a competitive edge over competitors. These improvements may result in more effective performance. The direct benefit accrue to an organization on practicing e-commerce are better quality, greater customer satisfaction, better decision making, low cost, high speed and real time interaction. More specifically e-commerce enables executing of information relating to the transaction between two or more using interconnected networks.

From the business perspective with less time spent during each transaction, more transaction can be achieved on the same day. As for the consumer, they will save up more time during their transaction. Because of this, E-commerce steps in and replaced the traditional commerce method where a single transaction can cost both parties a lot of valuable time.

E-commerce is the most cost effective compared to traditional commerce method. This is due to the fact where through e-commerce, the cost for the middleperson to sell their products can be saved and diverted top another aspect of their business. For e-commerce, the total overheads needed to run the business is significantly much less compared to the traditional commerce method. The reason due to that is where most of the cost can be reduced in E-commerce.

To both the consumers and business, connectivity plays an important part as it is the key factor determining the whole business. From the business point of view, E-commerce provides better connectivity for its potential customer as their respective website can be accessed virtually from anywhere through the Internet. This way, more potential customers can get in touch with the company's business and thus, eliminating the limits of geographical location. From the customer's standpoint, E-commerce is much more convenient as they can browse

through a whole directories of catalogues without any hassle, compare prices between products, buying from another country and on top of that, they can do it while at home or at work, without any necessity to move a single inch from their chair. Besides that for both consumers and business, E-commerce proves to be more convenient as online trading has less red tape compared to traditional commerce method. Ecommerce itself gives a boost to the global market. In short, if without any major obstacles, E-commerce will certainly continue to mature in the global; market and eventually, it will become an essential business plan for a company in order to survive and stay competitive in the ever changing market.

E-commerce business have numerous advantages over off line retail locations and catalog operators consumers browsing online stores can easily search to find exactly what they are looking for while shopping and can easily comparison shop with just a few clicks of the mouse. Even the smallest online retail sites can sell products and turn a profit with a very simple online presence. Web tracking technology allows e-commerce sites to closely track customer preferences and deliver highly individualized marketing to their entire customer base. Some of the benefits of e-commerce are

- ➢ Expanded geographical reach
- ➢ Expanded customer base
- ➢ Increase visibility through Search engine Marketing
- ➢ Provide customers valuable information about your business
- ➢ Available 24/7/365 – Never close
- ➢ Build customer Loyalty
- ➢ Reduction of Marketing and Advertising costs
- ➢ Collection of customer Data

Impacts, Challenges and Limitations of E-commerce

Impacts of E-commerce

The introduction of e-commerce has impacted on the traditional means of online exchanges. It is creating a new market place and opportunities for the reorganization of economic processes, in a more efficient way. The open structure of the Internet and the low cost of using it permit the interconnection of new and existing information and communication technologies. It offers businesses and consumers an innovative and powerful information system and another form of communication. This changes the way they search and consumer products, with these products increasingly customized, distributed and exchanged differently. The advent of e-commerce has seen a dramatic impact on the traditional ways of doing business. It has brought producers and consumers closer together and eradicated many of the costs previously encountered. It is evident that the supply industry will benefit from e-commerce which includes those producing computers, networking equipment and the software necessary. It is also evident

that a negative impact will be targeted at direct substitutes, such as retail travel agencies, retailers of software and "bricks and mortar: music stores. However, these impacts will be small compared to the developments imaginable.

Challenges of E-commerce

As far as e-commerce is concerned it is still in an infancy stage in India. The environment exist today is not much suitable for the fast growth of e-commerce. There are various problems and challenges, which should be resolved immediately to achieve a fast growth in this area.

One of the important challenges faced by this sector is the lack of adequate infrastructure for IT technology and Internet. The penetration of personal computers in India is as low as 3.5 per thousand of population compared to over 6 per thousand in China and 500 per thousand in USA.

Another important reason for not developing e-commerce is the high tariff rate charged by Internet Service Providers [ISPs] Speed and connectivity is also poor.

Another problem faced is that e-commerce sites are one of the favorite targets of hackers. If you think that your site is not relevant enough to catch their attention, you are wrong, and this way of thinking will help you to prepare to face related risks. And the most serious drawback is the absence of effective cyber law at the moment. E-commerce is governed by the UNCITRAI model code, but this is not binding on any country. It is expected that all WTO member countries will soon enact laws to govern e-commerce. Towards this end, India has passed her Information Technology Act in May 2000.However, this Act simply considers the commercial and criminal side of law and fails to consider other multidimensional aspects of e-commerce,

Another cause for the slow growth of e-commerce is the privacy and security issues. Measures like digital signatures, Digital certificates, and fire walls can be adopted to secure safety and protection over the message passed on internet. Payment related problems also continue to block the e-commerce activities. Electronic cash, credit cards etc. are some of the popular payment method used for e-commerce transactions. But unfortunately penetration of e-cash and credit cards not only low, but Indian consumers are suspicious about the threat of fraud played by unscrupulous hackers. In order to minimize this problem experts suggest the use of digital certificate along with credit card to secure their payment activities.

Limitations of E-commerce

Electronic commerce is also characterized by some technological and inherent limitations which have restricted the number of people using this revolutionary system. One important disadvantage of e-commerce is that the Internet has still not touched the lives of a great number of people, either due to

lack of knowledge or trust. A large number of people do not use the Internet for any kind of financial transaction.

Another limitation of e-commerce is that it is not suitable for perishable commodities like food items. People prefer to ship in the conventional way than to use e-commerce for purchasing food products. So e-commerce is not suitable for such business sectors. The time period required for delivering physical products can also be quite significant in case of e-commerce. A lot of phone calls and e-mails may be required till you get your desired products. However returning a product and getting a refund can be more troublesome and time consuming than purchasing, in case if you are not satisfied with a particular product. Some of the other limitations are:-

- ✓ Credit card security is a serious issue if vulnerable
- ✓ Costs involved with bandwidth and other computer and server costs
- ✓ Extensive database and technical knowledge and experience required
- ✓ Customer apprehension about online Credit Card orders
- ✓ Constantly changing technology may leave slow business behind
- ✓ Some customers need instant gratification, and shipment times interrupt that
- ✓ Search utilities far surpasses the speed used to find products through catalogs
- ✓ Encourages competition between small and large online retailers

Supply Chain Management and E-Commerce

A SUPPLY CHAIN is a network of supplier, manufacturing, assembly, distribution and logistics facilities that perform the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these products to customers. Supply chains arise in both manufacturing and service organizations.

It is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Supply Chain Management [SCM] is a systems approach to managing the entire flow of information, materials, and services from raw materials suppliers through factories and warehouses to the end customer. SCM is different from Supply Management which emphasizes only the buyer supplier relationship.

Supply chain Management is utilized to facilitate the coordination with outside business entities, or in the scope of extended enterprise. SCM usually refers to the redesign of supply chain processes in order to achieve streamlining of supply chain collaboration. It is generally performed only by large corporations

with large suppliers. A Supply chain is a collection of interdependent steps that, when followed, accomplish certain objective such as meeting customer requirements. It is the combination of art and science that goes into improving the way your company finds the raw components it needs to make a product or service manufacture the product or service and delivers it to customers.

Supply chain networks have gained prominence in the last decade. Important reasons for their growing importance include: global dispersion and distribution facilities; demand for customized products for local markets; competitive pressures; and rapid advances in information technologies in the form of EDI, internet technologies, electronic commerce etc.

The term supply chain management was first used in the early 1980s to refer to the notion that manufacturing firms should think of their own internal operations as an integrated whole, rather than as separate departments such as purchasing, stores, production, finished good warehouse, distribution and so on. It was quickly extended to cover relationships with suppliers and with immediate customers the idea being that working more closely and co-operatively with these e counterparts would enable a kind of integration and co-ordination that would lead to reduced inventory, better quality and delivery performance and reduced cost for everyone involved. The following parties are generally involved in a supply chain:

➡ Suppliers – organizations that provide foods or services to a purchasing organization.

➡ Manufacturers- are the companies engaged in the original production and assembly of products, equipments or services.

➡ Distributors – arte the external entities that sell for suppliers or manufacturers directly and often collect all payments from customers and maintain an inventory of the suppliers or manufacturers products.

The following are five basic components for supply chain management:

1. Plan – This is the strategic portion of supply chain management. You need a strategy for managing all the resources that go toward meeting customer demand for your product or service. A big piece of planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

2. Source- Choose the suppliers that will deliver the goods and services you need to create your product or service. Develop a set of pricing, delivery and payment

3. Make- This is the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery. As the most metric intensive portion of the supply chain, measure quality levels, production output and worker productivity.

4. Deliver- This is the part that many insiders refer to as logistics. Co-ordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments

5. Return- The problem part of the supply chain. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

Types of Supply Chain Management Systems

1. Public B2B Exchanges

In this type of supply chain Management system, companies get more options to select the suppliers that fit in their business needs, and they also have more power in negotiating the prices and terms of services. The cost of participation in a public exchange is significantly lower than implementing our own SCM systems

2. Private Supply Chain Management systems'

It is developed for specific industry and particular company.SCM systems are often tightly integrated a limited few suppliers and trading partners. The purpose of SCM is more of collaboration than price negotiation. The disadvantage of private supply chain software, compared with public B2B exchanges is the cost of implementation.

The main objectives of supply chain management are

- To reduce inventory costs
- To increase sales
- To improve the co-ordination and the collaboration with suppliers, manufacturers and distributors.

MODULE II

BUSINESS MODELS OF E-COMMERCE

E-Commerce is a much wider subject than selling online. It is of the view that e-commerce covers any form of transaction where technology has played a part. There are also many different types of e-commerce, with differing relationships existing with each. Some of the important models of e-commerce are as follows:-

1. Business to Business [B2B]

B2B (business – to- business) is the major and valuable model of e-commerce.B2B (business – to- business) e-commerce is conducted between two separate businesses and has been in effect for many years. E-commerce plays an important role in enhancing and transforming relationships between and among business. B2B (business – to- business)is also known as e-biz, is the exchange of products, services, or information between businesses rather than between businesses and consumers. Although early interest centered on the growth of retailing on the Internet (sometimes called e-tailing), forecasts are that B2B revenue will far exceed business to consumers [B2C] revenue in the near future. B2B (business – to- business)is a kind of e-commerce, which refers to a company selling or buying from other companies. One company communicates with other companies through electronic Medias. Some of these transactions include sending and receiving orders, invoice and shopping orders. It was an attractive alternative to the current process of printing, mailing various business documents.

Some B2B applications are the following:-

1. Supplier Management

Electronic applications in this area helps to speed up business partnerships through the reduction of purchase order processing costs and cycle times, and by maximizing the number of purchase order processing with fewer people.

2. Inventory Management

Electronic applications make the order-ship bill cycle shorter. Businesses can easily keep track of their documents to make sure that they were received. Such a system improves auditing capabilities, and helps reduce inventory levels, improve inventory turns, and eliminate out- of- stock occurrences.

3. Distribution Management

Electronic based applications make the transmission of shipping documents much easier and faster. Shipping documents include bill of lading,

purchase orders, advance ship notices, and manifest claims. E-commerce also enables more efficient resource management by certifying that documents contain more accurate data.

4. Channel Management

E-commerce allows for speedier distribution of information regarding changes in operational conditions to trading partners. Technical, product and pricing information can be posted with much ease on electronic bulletin boards.

5. Payment Management

An electronic payment system allows for a more efficient payment management system by minimizing clerical errors, increasing the speed of computing invoices, and reducing transaction fees and costs.

Many organizations are implementing electronic commerce in numerous ways and receiving tangible benefits but as electronic commerce matures and develops, these ways are likely to change based on the accelerating adoption rate. There are three specific implementation models of B2B E-commerce:-

- Transaction based- a single company establishes a common transactional method for conducting business with its major customers or key suppliers. This offering is common across all business units within the company and includes common tools, techniques, and infrastructure.

- Process based- Two companies establish a common business process to conduct business efficiently between the two firms. The two firms establish and share this common practice jointly, both within their firm and outside their organization with this predetermined trading partner.

- Strategic relationship based – Two or more companies establishing a strategic relationship partnership based on all major interactions between the organizations. This includes transactions, processes, and any other collaboration between the organizations. From a technology perspective this includes linking the CRM, ERP and SCM systems of the two organizations. This way each organization can actually monitor sales activity, production schedules, inventory management, and technical service exchanges.

2. Business – to Consumer [B2C]

Business – to Consumer [B2C] e-commerce consists of the sale of products or services from a business to the general public. Products can be anything from clothing to flowers and the products can also be intangible products such as online banking, stock trading, and airline reservations. Sellers that use B2C business model can increase their benefits by eliminating the middlemen. This is called disintermediation because businesses sell products directly to consumers without using traditional retail channels. Business – to Consumer [B2C] is basically a concept of online marketing and distributing of products and services

over the internet. It is a natural progression for many retailers or marketer who sells directly to the consumer. The general idea is, if you could reach more customers, service them better, make more sales while spending less to do it that would the formula of success for implementing a B2C e-commerce infrastructure.

A business firm can also establish relations with customers through electronic medias. For this, the company has to design a web site and place it on the internet. On the web site, the company can publish all details about the product and services and that benefits customers to place orders for these goods from the web site.

To maintain customers always with company's web site, the company must update the information on the web regularly. Consumers always demand greater convenience and lower prices. Electronic commerce provides consumers with convenient shopping methods.

Business – to Consumer [B2C] e-commerce provides many benefits to the business. Some of them are:-

- Lower Marketing costs
- Lower order processing cost
- Better customer service
- Lower customer support cost
- Wider markets

3. Business – to –Government [B2G] e-commerce

B2G refers to the supply of goods and services for online government procurement. This is a huge market which mainly covers everything from office supplies to military equipment.B2G websites offer lower costs and greater choice to the administration, and make government tendered offers more accessible to companies.B2G is a derivative of B2B marketing and often referred to as a market definition of public sector marketing which encompasses marketing products and services to various government levels including-federal, state and local- through integrated marketing communications techniques using as strategic public relations, branding, , advertising, and web based communications.

A website offering Business – to –Government services could provide businesses with the following.

- A single place to locate applications and tax forms for one or more levels of government (city, state or local)
- To provide the ability to send in filled out forms and payments
- To update corporate information
- To request answers to specific questions

Business – to –Government decreases the cost of transactions with reference to licenses, selling publication of government documents, tax returns and general dealings with businesses and the public. It has increased information flow.

4. Business- to- employee [B2E]

Business- to- employee [B2E] uses an intrabusiness network which allows companies to provide products and/ or services to their employees. It is the use of intranet technologies to handle activities that take place within a business. An intranet is an internal network that used Internet technologies.

Business- to- employee [B2E] is different from other type since it is not a revenue form of business. Otherwise, it increases profits by reducing expenses within a company. Instead of having to look everything up manually they can collaborate with each other and exchange data and other information.

Many companies have found that B2E technologies have dramatically reduced the administrative burdens with the human resources department. Admittedly, maintaining employee information has little to do with commerce, but this term has grown to encapsulate this activity into the B2E definition. Examples of B2E applications include

1. Online insurance policy management
2. Corporate announcement dissemination
3. Online supply requests
4. Special employee offers
5. Employee benefits reporting
6. 401(k) Management

E-Commerce Strategy

Companies with an E-business strategy are more open. The entire organization focuses on the market and has greater visibility, more efficient collaboration and stronger relationships. Opening up a business, however, requires an extended ERP Solution which integrates the front office with the back-office system. Customer Relationship Management [CRM] and Supply Chain Collaboration [SCC] compliment back-office relationship. SCC streamlines the flow of information and self service capabilities through automation and interaction. Such solution allows customers, partners and employees to access system functions and information via the Internet. They use the critical business and financial information in your ERP solution to promote profitable new ways to work with customers and vendors.

The various elements required to implement a successful e-commerce strategy are:-

- Make sure to have a Market –
- Use a clicks and mortar strategy if possible- it combines offline resources, such as store brands, channels with an online e-commerce presence
- Integrate the shopping experience Integrate information, personal details and purchase history
- Plan about the content, pricing, stock management, fulfillment, support, payment, returns, support and security.
- Develop an easy-to use purchase process
- Consider localization issues
- Consider customer relationship management and personalization
- Use the right software
- Always employ the right team in place
- Use enough marketing campaign

Influencing factors of successful E-commerce

The crucial factors to be considered while launching an E-commerce web site are

1. Website

Website must be easy to navigate since the surfer should not have to search for the product or details he or she is looking for. The website should project its products in as provocative way so the surfer wants to see more. Place testimonials or photos of the product can also help to create a positive image.

2. Merchant Account

All major credit cards have to be accepted for an e-commerce transaction. So there arises a need for a merchant account

3. Shopping cart and Secure server

The online shopping cart allows the customers to choose and place their chosen products in the cart just as one would do in shopping mall. This cart will, at the end of the shopping, total the products and give the total cost of the products chosen.

4. Payment gateway

This is the link from the credit card to the credit card processor. This gateway helps information to pass from the website to the authorization centre where the credit card is verified and then charged, after that the reply will come back into the website that the processing has been successful. A payment gateway will always check for details in credit card information and reject any discrepancy in the information.

MANAGING E-BUSINESS INFRASTRUCTURE

The Internet

Internet is the world's largest computer network. The internet is a network or more precisely "Inter-network" of hundreds of connecting networks made up of different types of computers all over the world that can share messages and information with one another. Internet is a global network of computers. The Internet has revolutionized the computer and communications world like nothing before. Anybody can access the Internet and can use the resources available on the Internet.

The Internet is a worldwide, publicly accessible series of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol (IP)It is a "network of networks" that consists of millions of smaller domestic, academic, business, and government networks, which together carry various information and services, such as electronic mail, online chat, file transfer, and the interlinked web pages and other resources of the World Wide Web [WWW]

The different purposes of Internet are as follows:-

1. Sending and receiving E-mails (It is an instantaneous way of sending and receiving messages, called electronic mail0 round the world at minimal price

2. Finding information on any topic or can be used as an educational tool.

3. Helps in participating in discussion on wide range of topics

4. Used to send data in the form of files from one computer to other with the facility called FTP [File Transfer Protocol]

5. It is used for research purpose.

6. Internet provides a great learning experience

Intranets and Extranets

Intranets

An intranet is an internal, secured business environment, which uses HTML and TCIP protocols like the Internet, but operates on a LAN [Local Area Network]. If the LAN Provides access to the Internet, the Intranet resides behind a firewall, with no gateway to, or from the Internet. If a gateway exists, it is not an intranet, but an extranet.

An intranet is a private computer network that uses Internet protocols and network connectivity to insecurely share part of organizations information or operations with its employees. Growth of Internal networks based on Internet technologies known as the Intranet is out spacing the growth of the global internet itself. An Intranet is a company- specific network that uses software

programs based on the Internet TCP/IP Protocol and common Internet user interfaces such as the web browser. Intranet is the application of Internet technologies within an organization private LAN or WAN Network.

The Intranet environment is completely owned by the enterprise and is generally not accessible from the Internet at large. An Intranet incorporates a working, interactive custom environment to serve the business model, with familiar internet-like functionality and navigation. An intranet can be as basic or comprehensive as need dictates.

Some of the advantages of Intranet are

- Ease of use
- Publishing ease
- Low cost
- Low maintenance
- Easy software distribution

Extranet

Extranet is a business to business intranet that allows limited controlled, secure access between a company's internet and authorized users from remote locations. The information stored on the web of one organization can be shared by other organizations if they are in good terms.

Extranet is also a private network of an organization. However, it allows trusted external partners or clients such as suppliers, customers and business partners to access the network. An intranet extended to trusted external parties becomes an extranet. An external party would have limited access to the network compared to an internal employee of the organization.

An extranet can be viewed as part of a company's Intranet that is extended to users outside the company .An extranet can be understood as a private intranet mapped onto the Internet or some other transmission system not accessible to the general public, but is managed by more than one company's administrator.

Extranet is an extension of an intranet which makes the later accessible to outside companies or individuals with or without an intranet. Parts of an intranet are made available to customers to business partners for specific applications. The links between an intranet and its business partners are achieved through TCP/IP, the standard internet protocol. Extranets provide the privacy and security of an intranet while retaining the global reach of the internet. Business to business E-commerce is growing on Extranets. Companies gain competitive advantage through speedier transactions and access newer markets, as also by simplified and faster distribution of information, products and services.

Companies can use an extranet to:

- Exchange large volumes of data using Electronic Data Interchange [EDI]
- Share product catalogs exclusively with wholesalers or those "in the trade"
- Collaborate with other companies on joint development efforts
- Jointly develop and use training programs with other companies
- Provide or access services provided by one company to a group of other companies, such as on line banking application managed by one company on behalf of affiliated banks.
- Share news of common interest exclusively with partner companies

World Wide Web

WWW or World Wide Web is used for people around the world and it would easily link to other pieces of information, so that only the most important data would quickly found by a user.

WWW is a global web in which millions of users are communicating with each other with the help of computers. It is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents. It is an Internet based computer network that allows users on one computer to access information stored on another through the world wide network.

Working of the WWW

The WWW works on a Client-server approach. Whenever the user wants to retrieve a webpage, the www works as follows:

1. A user enters the URL of the webpage in the address bar of the web browser.
2. The web browser requests the Domain Name Server for the IP address corresponding to www.yahoo.com
3. After receiving the IP address, the browser sends the request for the webpage to the Internet using HTTP protocol which specific the way the browser and Web Server communicates. The Internet Routers send the request to the intended web server
4. Then the web server receives the request using HTTP protocol. It then examines the hard disk or memory and if the requested file is found it returns it back to the web browser and closes the Http connection.
5. The Web browser then interprets the file and displays the contents of the webpage in the browser window.

Voice over IP [VoIP]

Voice over Internet Protocol [VoIP] is simply the transmission of voice traffic over IP based networks. The internet Protocol (IP) was originally designed for data networking. The success of IP in becoming a world standard for data networking has led to its adaption to voice networking. Thus, Voice over Internet Protocol (VoIP) is a technology that allows to make voice calls using a broadband Internet connection instead of a regular phone line.

VoIP is one of the new technologies that have the capability to dramatically change the telecommunications scene of tomorrow. VoIP is a technology that helps people to use the Internet as a transmission medium for telephone calls. By using VoIP, callers can avoid long distance phone charges and save expensive telephone infrastructure costs.

VoIP services convert our voice into a digital signal that travels over the Internet. If we are calling a regular phone number, the signal is converted to a regular telephone signal before it reaches the destination. VoIP can allow us to make a call directly from a computer, a special VoIP phone, or a traditional phone connected to a special adapter. In addition, wireless "hot spots" in locations such as airports, parks, and cafes allows connecting to the Internet and may enable to use VoIP service wirelessly

VoIP Telephones

There are three methods of connecting to VoIP network

1. Using a "normal" telephone with a VoIP adapter

It is through the use of a device called an ATA {Analog Telephone Adaptor}.The ATA allows us to connect a standard phone to computer or Internet connection for use with VoIP. The ATA is an analog-to-digital converter. It takes the analog signal from traditional phone and converts it into digital data for transmission over the INTERNET.

2. Using a VoIP telephone

These specialized phones look like normal phones with a handset, cradle and buttons. But instead of having standard RJ-11 phone connectors, IP phones have an RJ-45 Ethernet connector. IP phones connect directly to our router and have all the hardware and software necessary right onboard to handle IP call. Wi-Fi phones helps to subscribe callers to make VoIP calls from any wi-fi hot spot.

3. Using a computer with speakers and a microphone

This is certainly the easiest way to use VoIP. We need not even have toi pay for long distance calls. All that is required is software, microphone, speakers, a soundcard and an Internet connection. A broadband [high speed internet] connection is required for VoIP technology. This can be through a cable modem, or high speed services such as DSL or a local area network. A computer, a

adaptor, or a specialized phone is required./ Some VoIP services only work over your computer or a special VoIP phone, while other services allows to use a traditional phone connected to a VoIP adaptor.

Benefits of VoIP

- Low cost

- Eliminating phone lines

- Increased functionality and Reliability

- Eliminating Long Distance Charges

- Number portability

- Computer Telephony Integration [CTI]

The Internet Standards

At the technical and developmental level, the Internet is made possible through creation, testing and implementation of Internet Standards. These standards are developed by the Internet Engineering Steering Group, with appeal to the Internet Architecture Board, and promulgated by the Internet Society as international standards. The RFC Editor is responsible for preparing and organizing the standards in their final form. The standards may be found at numerous sites distributed throughout the world, such as the Internet Engineering Task Force.

An Internet Standard [STD] is a normative specification of a technology or methodology applicable to the Internet. Internet Standards are created and published by the Internet Engineering Task Force [IETF].An internet Standard is a special Request for Comments [RFC] or set of RFCs. The definitive list of Internet Standards is maintained in Internet Standards document STD 1: *Internet Official Protocol Standards.*

INTERNET PROTOCOLS

A communication protocol allows different kinds of computers using different operating systems to communicate with one another. It is highly essential because Internet is not made up of computer system. Instead there are great diversities found in the computers used on the internet. The user connected on any network on the Internet can communicate with others or software located on any other network connected to the internet using common set of protocols. An internet protocol is a set of standards or rules for exchanging information between computer systems in a network. The most commonly used protocols are:-

1. Transmission control Protocol/Internet Protocol [TCP/IP]

   It is actually a collection of protocols that govern the way data travel from one computer to another across networks. A user connected on any network on the Internet can communicate with people or software located

on any other network connected to the internet using this common set of protocols. On the internet, the protocol that permits two internet connected computers to establish a reliable connection is called TCP/IP.

2. File Transfer Protocol [FTP]

FTP is the protocol or set of rules, which enables files to be transferred from one computer to another computer.FTP works on the client/server principle. A client program enables the user to interact with a server in order to access information and services on the server computer. Files that can be transferred are stored on server computers. A client can access these files only through a client application program. This program helps a client computer to locate the required file to be transferred and starts the process of transfer.

3. Hyper Text Transfer Protocol [HTTP]

HTTP is an internet standard or set of rules that allows the exchange of information on the World Wide Web. Hyper text is a method of preparing and publishing text, ideally suited to the computer, in which users can select their own text. To prepare hyper text, the whole material should be divided into small segments such as single pages of text. These small segments are called nodes. Then hyper links are embedded in the text. When the user clicks on a hyper link, the hyper text software displays a different node. The process of navigating among the nodes linked in this way is called browsing. A collection of nodes that are interconnected by hyper links is called a web. A Hyper text is prepared using Hyper Text Markup Language [HTML].The html codes are used to create links.

Http is also based on the client/server principle. It allows the client computer to contact with server computer and make a request. The server accepts the connection requested by the client and sends back a response. An Http request identifies the information or text that the client is needed and it tells the server to supply the text.

4. Telnet

Telnet is an Internet protocol or set of rules that enables internet users to connect to another computer linked to the internet. This process is also called as remote login. The user's computer is referred to as the local computer and the computer being connected to is referred to as remote or host computer. Once access is established between local and host computer, local computer can give commands do that they are executed in the host computer.

5. Gopher

Gopher is a protocol linked to the internet to search , retrieve and display documents from remote sites on the internet, It is a menu based program

that helps the user to find files, programs, definitions and other topics that the user specifies. Gopher protocol allows the user to free from the troubles of specifying the details of host, directory and file names. Instead, the user can browse through menus and press Enter when he finds some interesting topic. Gopher is interacting with a large number of independently owned computers around the world.

6. Wais

Wais stands for Wide Area Information Service. WAIS is a internet search tool and describes as a protocol for computer to computer information retrieval. It is a program that permits the user to search information worldwide based on a service of key words. WAIS has the capability of simultaneously searching in more than one database.

Audio and video standards

Audio-Video Standard, or AVS, is a compression codec for digital audio and video. Chinese companies own 90% of AVS patents. The audio and video files have an .avs extension as a container format. Development of AVS was initiated by the government of the People's Republic of China. Commercial success of the AVS would not only reduce China's electronics industry recognition among the more established industries of the developed world, where China is still seen as an outlet for mass production with limited indigenous design capability.

In January 2005, The AVS workgroup submitted their draft report to the Information Industry Department [IID]. On march 30, 2005,the first trail by the IID approved the video portion of the draft standard for a public showing time. The dominant audio/ video compression codec's, MPEG and VCEG , enjoy widespread use in consumer digital devices, such as DVD players. Their usage requires Chinese manufacturers to pay substantial royalty fees to the mostly- foreign companies that hold patents on technology in those standards.

AVS was expected to be approved for the Chinese high definition successor to the Enhanced Versatile Disk, and when CBHD was released it shipped with 30gb blue laser discs and video in the AVS format, which rapidly gained market share- standing at 30% of the video in the AVS format, which rapidly gained market share- standing at 30% of the video disc market after four months.

Web Services and Service- oriented architecture [SOA]

Web services are typically application programming interfaces [API] or web APIs that can be accessed over a network, such as Internet on a remote system hosting the requested services. A web service is a service that communicates with clients through a set of standard protocols and technologies. These web services standards are implemented in platforms and

products from all the major software vendors, making it possible for clients and services to communicate in a consistent way across a wide spectrum of platforms and operating environments. This universality has made web services the most prevalent approach to implementing an SOA. Web service is a software system designed to support interoperable machine to machine interaction over a network. It has an interface described in a machine processable format.

Service oriented Architecture [SOA]

Service oriented Architecture is an information technology approach in which applications make use of services available in a network such as the World wide web. Implementing service oriented architecture can involve developing applications that use services, making applications available as services so that other applications can use those services, or both.

SOA is an approach to connect various applications so that they can communicate with each other. It is a way of sharing functions, typically business functions, in a widespread and flexible way. It is an architectural style which aims at to achieve loose coupling among interacting software agents. A service is a unit of work done by a service provider to achieve desired end results for a service consumer. Both provider and consumer are roles played by software agents on behalf of their owners.

What distinguishes an SOA form other architectures is loose coupling. Loose coupling means that the client of a service is essentially independent of the service. The way a client communicates with the service doesn't depend on the implementation of the service. This means that the client does not have to know very much about the service to use, it. Loose coupling enabling services to be document oriented. A document oriented service accepts a document as input, as opposed to something more granular like a numeric value or java object. The client does not know or care what business function in the service will process the document. It is up to the service to determine what business function to apply based on the content of the document

An SOA can also include a service that provides a directory or registry of services. The registry contains information about the service such as its interface. A client can discover services by examining the registry. A registry can also be coupled with a repository component that stores additional information about each service

Rules of SOA

- The messages must be descriptive, rather than instructive, because the service provider is responsible for solving the problem

- Service providers will be unable to understand your request if your messages are not written in a format, structure, and vocabulary that is understood by all the parties. The more restricted a message is, the easier it is to

understand the message, although it comes at the expense of reduced extensibility.

- Extensibility is vitally important. The world is an ever- changing place so is any environment in which a software system lives. Those changes demand corresponding changes in the software system, service consumers providers and the messages they exchange. If messages are not extensible, consumers and providers will be locked into one particular version of a service.

- SOA must have a mechanism that enables the consumer to discover a service provider under the context of a service sought by the consumer. The mechanism can be really flexible, and it doesn't have to be a centralized registry.

New access Devices

An access device is a network component used to gain access to network resources from a remote location, and vice versa. Common access devices are routers and modem pools. An access device aggregates multiple channels of information including voice and data across a single shared access link to a carrier or service provider PoP [Point of presence].The Access link may be a TI line, a DSL connection, a cable network or a broadband access link to a metro Ethernet connection.

An access Device is typically installed at the customer premises. Sometimes, an access device is installed by the service provider if chosen by the customer. This allows the service provider to control the features of the access link and manage its operation during use. Some of the Internet access devices include

- Cell phones
- Mobile Internet Devices [MIDs]
- Two- way Pagers
- Personal Digital Assistants

Future of the Internet Infrastructure

The future of any technology is difficult to forecast, and we do not profess to know what the future holds for the Internet. The Internet has revolutionized the access of information and communication in 1990's.The ongoing development in speed, bandwidth, and functionality will continue to cause fundamental changes in the world for decades to come. Some of the major trends shaping the future of the Internet are as follows:-

1. Globalism:-

The future of the Internet global distribution of information and knowledge at lower and lower cost will continue to lift the world community for generations to come. People will have access to any information they wish, get smarter sooner, and be more aware of the world

outside their local environment. A better informed humanity will make better macro- level decisions, and an increasingly integrated world will drive international relations towards a global focus.

2. Communities:-

This internet communication revolution results into a new uniting community. The Internet will increasingly be used for communications within communities as much as across countries. Local communities will organize in virtual space and take increasing advantage of group communication tools such as mailing lists, new groups, and web sites, and towns and cities will become more organized and empowered at the neighborhood level.

3. Virtual Reality

With the continued increase of computer capability every couple of years, the ability of technology to process the complex environment that humans live in – " reality" – will continue to increase, and will be increasingly integrated with the Internet.

Three dimensional graphics will become more sophisticated, and virtual reality interfaces such as viewers and physical feedback systems will become more realistic. The increasingly sophisticated virtual experiences will continue to change how we understand the nature of re3ality, experience, art and human relations.

4. Bandwidth

Large increases of bandwidth in the 10 Mbps range and up will continue to be deployed to home users through cable, phone and wireless networks. High resolution audio, video, and virtual reality will be increasingly available online and on demand, and the cost of all kinds of Internet connections will continue to drop.

5. Wireless

The future of Internet wireless communication is the endgame. Wireless frequencies have two great advantages. (a) There are no infrastructure start-up or maintenance costs other than the base stations and (b) it frees users to become mobile, taking Internet use from one dimension to three. Wireless Internet Networks will offer increasingly faster services at vastly lower costs over wider distances, eventually pushing out physical transmission systems.

6. Grids.:-

The future of the Internet grid movement is as inevitable as the spread of the Internet seems now. The connection of thousands of computers on the Internet together to solve problems, often called grid

computing will continue to evolve and change many areas of human Endeavour.

7. Integration

The integration with an increasing number of other technologies is as natural as a musician's experimentation with notes. The internet will become increasingly integrated with phones, televisions, home appliances, portable digital assistants, and a range of other small hardware devices, providing an unprecedented, nearly uniform level of integrated data communications. Users will be able to access, status, and control this connected infrastructure from, anywhere on the Internet.

MODULE III

MARKETING STRATEGIES AND E-COMMERCE

A website is very essential to conduct e-commerce. The success or failure of e-commerce to a greater extend is determined by the setting up of a suitable website and its promotion to attract customers from all over the world. A website is similar to storefront. In e-commerce context, it can be called as virtual storefront where cyber customers visit. A website is basically a series of pages with links to other pages or other sites. The pages contain text, banners, graphics and sometimes audio and video.

Web pages are accessed and transported with the hypertext Transfer Protocol [HTTP], which may optionally employ encryption [HTTP Secure, HTTPS] to provide security and privacy for the user of the web page content. The user's application, often a web browser, renders the page content according to its HTML markup instructions onto a display terminal.

All publicly accessible websites collectively constitute the World Wide Web. The pages of a website can usually be accessed from a simple Uniform Resource Locater called the homepage. The URLs of the pages organize them into a hierarchy, although hyper linking between them conveys the reader's perceived site structure and guides the readers' navigation of the site.

Some website requires a subscription to access some or all of their content. Eg. Academic journal sites, gaming sites social networking sites etc. The World Wide Web [WWW] was created in 1989 by CERN physicist Tim Berners Lee. On 30th April 1993, CERN announced that the World Wide Web would be free to use for anyone.

Components of a Website

E-commerce providers must take every opportunity to convey their professionalism in their website, products and services to their customer service as each will play an important part in their success. The important components of a website are as follows:-

1. Home page

This is the first page of a web site. The use reaches this page when they specify the address of a web site. It contains links and these links help the user to navigate the different parts of a site. It shows the name of the company and other important details.

2. Web page

A web page is used to display some specific information regarding each item or element described in the home page. The web pages can be accessed by using links given in the home page.

3. Domain name

It is highly essential to have a domain name for a web site. In order to establish credibility, it is better to have our own domain name and professional web hosting. Web sites hosted on free servers are not taken seriously and will suffer a serious loss of business. Visitors may feel that the company don't have even its own domain and hence may not be a credible company. They will simply take their business elsewhere.

4. Professional Logo

A professional looking logo is an integral part of a web site. It not only gives a professional appearance to web site, but it will also enable our visitors to recognize brand. The logo should be displayed in the top left corner of each page of web site.

5. Theme based content

A web site should focus on a specific subject and provide a variety of information that relates to the subject. Original content is always preferable.

6. E-mail capture

A web site should be able to capture email address of potential customers.

7. Privacy policy

We can create our own page on the web site called "Privacy" and let our visitors know exactly how we will be using the information collected from them. Such a page should contain warning to visitors regarding security and privacy of information they provide.

8. Testimonials

To increase credibility, it is better to include customers testimonials which include customer's name, e-mail address and web address.

9. Money back guarantee

Providing the customers with a solid, no risk, money back guarantee will increase credibility so that it completely removes our potential customer's risk. This will put their mind at ease by building their confidence with our company and products.

10. Feed back

Potential customers will have many questions about our products and services. It is better to use a feedback form for this purpose.

11. Copy rights

It is always good to display the copyright information at the bottom of each page.

12. Link

A link is a connector that makes it possible to go to another web page on the site or the Internet or to go back to the home page. A link has a specific title and directions for use.

13. Banner

A banner is a graphic display on a web page usually used for advertising. The banner is usually linked to the advertiser's web page.

Concept and Designing Website for E-commerce

Usability considerations should be of prime importance in the design of an electronic commerce website. The human mind processes new information based on observations and inferences and gradually he forms a conceptual or mental model. The design of an e-commerce website incorporates activities, ideas, terminology, and relationship that the user must handle when using the website. A conceptual model is the basis for user expectations. When a new user enters an e-commerce website, he quickly stars to build a conceptual model that relates the website to what he already knows. A user will perceive a website as easy to navigate and thus user friendly, if he can easily construct a conceptual model of the website, If a website requires a complex conceptual mode, the user sees the web site as confusing or difficult to use.

The challenge for the website designer is to come up with a design model and a system image that are consistent with the user's model of the website. The purpose of a website is to support and enhance the goals of a business or organization. It is not an end in itself. A website should be much more than just an online brochure, and a well designed web site integrates the following key concepts:-

1. Information Presentation

The information should be presented in such a manner that it should promote a comfortable and effective interaction between the user and the site. The web site developer has many ways to present information from simple text to multimedia displays. Selection and use of text, graphics, video, and audio depend on how well users will respond to the information.

The look and feel of an e-commerce web site should be based on user requirements. Page layout and navigation should be as intuitive and easy as possible. Audio and video used to attract users, or generated in response to user input should enhance the buyers experience and not distract from it. Audio sequence and video display segments should be limited to 20 to 30 seconds. The user should be able to interact video, audio, animation or other multimedia

display. Furthermore, the over use of images, audio video can increase the time in which a page downloads, which has an negative impact on usability.

Color choices should be pleasing to the eye and should stimulate the user's interest. Negative contrast should be used for flashing patterns- ie, flash a darker foreground on a brighter pattern.

2. Good navigation and usability

Good navigation and usability is another basic concept for a good website design. It should always possible for the visitors to navigate from one part of the website to the other easily.

3. Feedback

The interactive cycle between a user and a website is not complete until the website responds to a command entered by the use. Website feedback often consts of a change in the visual or verbal information presented to the user. Completed orders should be acknowledged quickly. This may be done with a acknowledgement or fulfillment page. The amount of time it takes to generate and download this page, is a source of irritation for many e-commerce users.

Design criteria

A good website is a medium to present our business. In designing website, the primary goal is to attract visitors through the presentation of information and thsi

ereby distributes or sells products to them. Therefore, the important criteria that is to be followed while designing a website includes the following:-

- The purpose of the site – should be to communicate the information about the business which includes information such as location, hours, contact information, products and services etc.

- Good domain name – domain names are the best if they are .com (commercial) names for businesses. This allows the person to type in just the main words or words and the site will come up

- Visibility – important website information should always fit within the typical horizontal viewing area of the screen

- Good coolers and graphics – it is used to get the visitors attention quickly and let links give them more detailed information. Good graphics should also be used so as to make the site more attractive.

- Good texts- simple and straight forward style should be used while giving details about our business. Reading text on complex background can make our information very difficult to read and understand.

- Pictures or Images- it add attraction to the site. A good picture of business place or logo can be shown in the site. Pictures or images of company's

products must be given in the site so that the customers who visit the site can actually see ht products offered.

- Good Meta tags – are read by Search Engines and should include at a minimum, the page title, and the name of the business, description of the business, the location, and key words.

- Quick to load – the home page of the site should load quickly and be easy to understand. Large pictures, moving graphics etc. will ion crease the load time.

- Easy to navigate- it should be possible to navigate easily from one part of the site to other or from one piece of information to other areas of information.

- Current content – the information should always be current and updated. Old information will make our website outdated. Information in the website should be updated in a timely manner.

- Leads- It is also essential to generate leads, sales or customer list. This can include simple forms for the customer to fill out giving their information or shopping carts so that product can be sold without our intervention.

- Ability to bring people back – it is better to create a mailing list of customers so that we can contact current customers and contacts from our site with updated information inviting them back to visit.

- Post site Built Scenario-It is advisable to read the site by many in order to avoid great mistakes and make sure that it is submitted to major search engines. Then add our site address to our email signature. It is also essential to add the URL of our advertising materials.

Corporate Web Site

A corporate website or corporate site is an informational website operated by a business or other private enterprise such as a charity or nonprofit foundation. They differ from electronic commerce sites in that they provide information to the public about the company rather than transacting business or providing other services. The phrase is a term of art referring to the purpose of the site rather than its design or specific features, or the nature, market sector, or business structure of the site operator.

Contents of a Corporate Web site

Corporate websites usually includes the following:

1. A home page

2. A navigation bar or other means for accessing various site sections

3. A unified look and feel incorporating the company logos, style sheets, and graphic images

4. An "about us "section with the following information

- A summary of company operations, history and mission statement

- A list of the company's products and services

- A section with biographical information on founders, board members, and important executives. Sometimes provides an overview of the company's overall workforce.

- A "news" section containing press releases and links to news articles about the company

- A "investor" section describing key owners and investors of the company

- A list of key clients, suppliers, achievements, projects, partners or others.

  5. Pages of special interest to specific groups. These may include

- An employment section where the company lists open positions and tells job seekers how to apply

- Investor pages with the annual report, business plan, current stock price, financial statements, overview of the company structure and other regulatory filings

- Pages for employees, suppliers, customers, strategic partners, affiliates etc.

6. Contact information

7. A terms of use document and statement of intellectual property ownership and policies as they apply to the site content

8. A privacy policy

Portal

A Web portal, also known as links page, presents information from diverse sources in a unified way. Portals provide a way for enterprises to provide a consistent look and feel with access control and procedures for multiple applications and databases, which otherwise would have been different entities altogether. A web portal is a web site that provides a gateway, or portal, to other resources on the Internet. Portals are often the first page when we start up our web browser like Netscape Navigator or Internet Explorer. The scope and coverage of the portals are very wide and hence the term search engine is not sufficient to describe the multi offerings provided by portals. Eg.Yahoo, MSN, ALO , iGoogle etc.

Sites listed as portals contain the following features:-

- Search Engine/ Directory
- E-mail Accounts
- News
- Sports and Weather

Types of Portals

1. Vertical Portal

These are web portals which focus only on one specific industry, domain or vertical. Vertical portal simply provides tools, information, articles, research and statistics on the specific industry or vertical. A Vertical information Portal [VIP] is a specializes entry point to a specific market place and or industry niche.Eg.i-village- meant for women and guru.com for independent professionals

2. Horizontal portal

They are general interest portals covering a wide range of topics and features such as yahoo or Google. These are mega portals dealing in a wide range of topics.

3. Enterprise Resource portals or corporate portals

It provides personalized access to an appropriate range of information about a particular company. Big corporations may set up their own portals in order to meet their various requirements ranging from planning to control of various functions. Initially called Intranet portals - enterprise portals existing for the benefit of the company own employees, this set of technologies has developed to assist and provide access to a company's business partners as well.

4. B2B portals

A portal that helps to establish relations and to conduct transactions between carious organizations is termed as B2B portals. Large volume of business is being undertaken through these channels, a company which maintains a portal can earn profit if they participate in the ownership of the website or charge a transaction fee for business done through the portal.

5. Application Centric Portals

These portals function as a one of tying together back end systems to support user's application driven business processes. Users could be viewing the information as read only or able to create, modify, delete, expire information based on rights and permissions – but they are essentially using the portal to attach a number of applications into one view – so that rather than having to open a number of different applications to drive their business processes they are able to access them all from one point.

6. Content Centric Portals

These portals function as one of obtaining information from a wide variety of sources and displaying that content to users in a way that is based upon user's role and segmented information needs. These are designed to improve the access to and sharing of information stored within an organization.

7. Knowledge Portals

These portals increase the effectiveness of knowledge workers by providing easy access to information that is necessary or helpful to them in one or more specific roles. Knowledge portals are not mere intranet portals since the former are supposed to provide extra functionality such as collaboration services, sophisticated information discovery services and knowledge map.

Search Engines

A search Engine is an Internet based interactive search device that enables a user to search for information on the Internet. Web search Engines are actually database that contain references to thousands of resources. A search Engine is software that scours the Internet collecting data about every website and every web page within a web page that it can. The database of most Internet Search Engines contains web documents. A web search Engine provides an interface between the user and database. A search Engine is interactive and it asks a user to type a search string, which may be a word, a phrase, a date or some relevant item associated with the information. The search begins the searching operation with these key words and continues searching it comes across a list of resources that matches the keyword. Many search engines include instructions and tips to search the databases more effectively.

WORKING OF SEARCH ENGINE

Search Engines for the general web do not really search the World Wide Web directly. Each one searches a database of the full text of web pages selected from the billions of web pages out there residing on servers. When you click on the links provided in a search Engine's search results, you retrieve from the server the current version of the page. Search Engines databases are selected and built by computer robot programs called spiders .They crawl the web in their hunt for pages to include. They find the pages for potential inclusion by following the links in the pages they already have in their database. They cannot think or type a URL or use judgment to decide to go look something up and see what's on the web about it.

If a web page is never linked to in any other page, search engine spiders cannot find it. The only way a brand new page – one that no other page – one that no other page has ever linked to – can get into a search engine is for its URL to be sent by some human to search engine companies as a request that the new page be included. All search Engine companies offer way to do this. After spiders find pages, they pass them on to another computer program for "indexing". This program identifies the text, links and other content in the page and stores it in the search engine's databases files so that the database can be searched by keyword and whatever more advanced approaches are offered, and the page will be found if your search engine matches its content. Some types of pages and links are excluded from most search engines by policy. Others are excluded because search engine spiders cannot access them. Pages that are excluded are

referred to as the "Invisible Web" – what you don't see in search engine results. The invisible web is estimated to be two to three or more times bigger than the visible web.

When you enter the key word search engine examines its database and gives a listing of sites that match the search criteria. The hundreds or thousands of search engine results are referred to as Hits.

Some popular search Engines include:-

➢ Google
➢ Alta vista
➢ Yahoo
➢ MSN
➢ Ask.com
➢ Dogpile
➢ Metacrawler
➢ Lycos
➢ Hotbot

Internet Advertising

Internet advertising is a new advertising medium. Internet advertising or online advertising is a form of promotion that uses the Internet and World Wide Web for the expressed purpose of delivering marketing messages to attract customers. It is a way for retailers to advertise their products and services online. Ads can target people with particular hobbies or interests, or they can even focus on customers in a specific country or state.

One major benefit of online advertising is the immediate publishing of information and content that is not limited by geography or time. Another benefit is the efficiency of advertiser's investment. Online advertising allows for the customization of advertisements, including content and posted websites.

Models of Internet Advertising

1. Banner Ads.

It appears as rectangular graphics near the top of the page. Banner Ads have been used for many years and are the most popular form of advertising on the web.

2. Floating Ads

These ads appear when we first go to a web page, and they "float" over the page for five to 30 seconds. While they are on the screen, they create difficulty to our view of the page and often block the mouse input as well.

3. Interstitials

These are form of advertisement on the web that appears between web pages that the user requests. These appear as pop-up windows displaying a message.

4. Unicast Ads.

A unicast ad is basically a TV commercial that runs in the browser window. It has enriched audio/ video content. The ads can last anywhere from 10 to 30 seconds

5. Takeover Ads

Viewers visiting the website will see a large ad when they first come, and then the continuity is maintained by reiterating the same message throughout the site in the form of banners, side bars or buttons.

6. Contextual Ads

This is a type of online advertising commonly used for content based websites. With contextual advertising, targeted Ads appear based on the page's actual content

7. Rich Media Ads

This is another form of banner advertising. Banners that are animated, contain audio or video, or just flash, blink or make weird sounds belong to this type

8. Advertorials

Advertisements take the form of website copy. Similar to an infomercial in the way it portraits goods or service and then proceeds to offer it to you.

9. E-zines

It resembles online magazines generally covering a topic of interest.

10. Newsletters

These are similar to E-zines , these give more industry related news and company updates.

11. Press releases

It provides newsworthy information that can be picked up for newspapers, magazines and industry related news sites.

Benefits of Internet Advertising

➢ Rich content

➢ Less expensive

➢ Quick updating

➢ Provides Brand relevant information

➢ Easy collection of data

➢ Global accessibility

➢ Greater flexibility

➢ Better Customer Relation

➢ Persuasive Ad

➢ Facilitate Purchase Decision

Weakness of Internet Advertising

1. Not a substitute for traditional Advertising

Internet advertising is not a substitute for traditional advertising models such as print advertising and TV advertising. Internet advertising will rapidly lose its value and its impact.

2. Unsolicited in nature

Pushing a message at a potential customer when it has not been requested and when the customer is the midst of something else on the net will fail as a major revenue source for most internet sites.

3. Misdirection

It means sending customers to web locations other than the once for which they are searching. Monetization of misdirection frequently takes the form of charging companies for key words and threatening to divert their customers to a competitor if they fail to pay adequately for key words that the customer is likely to use in searches for the company's products.

4. Emergence of contextual mobile ads.

A   At present contextual ads delivered to mobile phones through SMS. This has resulted in the reduction of popularity of Internet advertising.

5. Cluttered Appearance

Advertising that is disorganized and difficult to read, as well as presenting too much information at one time, often turns viewers off.

6. Not suitable for all products and services

Internet advertising is particularly suitable for products like music and books which can be successfully advertised through social networking sites such as face book and My space.

7. Less Dependable

Because of large number of SPAM and unsolicited emails that are sent out, users can have difficulty to distinguish between genuine advertising and false adverts and therefore the trustworthiness of advertisements is brought into question.

Emergence of Internet as a competitive Advertising Media

Interviews with marketers reveal that few believe the Internet will change their approach to advertising. Most see it as little more than a complement to traditional marketing practices, and don't expect it to reduce expenditure on broadcast and print media or change the form, pricing, or delivery of advertisements. It is probably a reaction to the early type of Internet and the World Wide Web

Internet Advertising will account for a growing proportion of overall advertising expenditure. Moreover, advertising – and marketing in general – will adopt practices first developed or deployed on the Internet. As the technology improves, the impact of internet advertising will increase and become easier to measure, and the gap between the new precise, interactive marketing capability and conventional "fizzy" passive media will widen. Over the next few years, advertising agencies and consumer marketers will be under pressure to change their whole approach to marketing communications.

Marketers will become more accountable for their results, and they will pay more attention to building a total customer relationship. Offering consumers value in return for information will become vital in eliciting their preferences. Companies' entire marketing organizations will be progressively redesigned to reflect interactions with consumers on the Internet. For ad agencies, fees based on results will become standard. The economics of Internet advertising are likely to make current business models obsolete.

Classical advertising strategies such as positioning, brand essence, and niche marketing are much more important when advertising on the Internet. The strength and weakness of the medium should be considered for advertising on the net. Internet advertising is always easier than the real world advertising. Web banner displays and mass emailing cost almost nothing. Space for advertising on the Internet can be bought very cheaply.

A company should take advantage of the fact that there are so many opportunities to reach potential customers, and come up with a diverse advertising strategy. They should maximize hits to websites offering to sell

whatever product they market. They should place references to their product wherever they can. Most of all, advertising on the Internet should incorporate a wide range of different fields meant to appeal to different possible customers.

MOBILE COMMERCE

Mobile commerce or M- commerce refers to transactions that are carried out with the help of an electronic device like cell phone. M-commerce is the buying and selling of goods and services through wireless handheld devices such as cellular phone and Personal Digital Assistants [PDAs]

Mobile commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer – mediated networks with the help of an electronic device.

Mobile commerce was born in 1997 when the first two mobile phone enabled Coco Cola vending machines were installed in the Helsinki area in Finland. They use SMS text messages to send the payment to vending machines.

Mobile commerce has two distinctive advantages of flexibility and ubiquity. Through this, consumers can conduct business transactions without being fixed at a computer terminal or being physically present at the shop. This provides a secure and convenient channel to link the existing credit cards, debit cards or bank accounts and carry out commerce transactions, including paying post paid bills, recharging prepaid, paying Fixed Line and Broadband Bills, buying movie or Air tickets, Paying Insurance premiums and much more

The combinations of more powerful mobile devices, much innovative mobile operators and change in the mobile network infrastructure[such as 3G and 4G which are able to carry large amounts of data at a high speed as broadband connections do for computer] is setting the stage for an huge change in a already fast moving sector. The mobile phone of the future is a device that enables users to communicate, connect, transact and innovate.

The products and services available through M-commerce includes:-

- Mobile ticketing
- Mobile vouchers, coupons and loyalty cards
- Content purchase and delivery
- Location based services
- Information services
- Mobile banking
- Mobile brokerage
- Auctions
- Mobile purchase
- Mobile marketing and advertising

MODULE IV

ELECTRONIC PAYMENT SYSTEM

Electronic Payment system is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument {such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an intermediary, or by a legal tender. The various factors that have leaded the financial institutions to make use of electronic payments are:-

1. Decreased technology cost

2. Reduced operational and processing cost

3. Increasing online commerce

The Internet Payment Processing System

The participants in an online electronic payment transaction include the following:-

1. The Customer:-Customer in an e-commerce may be the holder of a payment card such as credit card or debit card from an issuer

2. The issuer:-The issuer means a financial institution such as bank that provides the customer with a payment card .The issuer is responsible for the card holder's debt payment.

3. The Merchant – The person or organizations that sells goods or services to the cardholder via a website is the merchant. The merchant that accepts payment cards must have an Internet Merchant account with the acquirer

4. The acquirer – is a financial institution that establishes an account with the merchant and processes payment card authorizations and payments. The acquirer provides authorization to the merchant that given card account is active and that the proposed purchase doesn't exceed the customer's credit limit. The acquirer also provides electronic transfer of payments to the merchant's account, and is then reimbursed by the issuer via the transfer of electronic funds over a payment network.

5. The Processor – The Processor is a large data centre that processes credit card transactions and settles funds to merchants, connected to the merchant on behalf of an acquirer via a payment gateway.

Basic steps of an online payment

The basic steps of an online payment transaction include the following:-

- The customer places an order online by selecting items from the merchant's Website and sending the merchant a list. The merchant often replies with an order summary of the items, their price, a total, and an order number

- The customer places an order along with their credit card information and sends it to the business. The payment information is usually encrypted by an SSL pipeline set up between the customer's web browser and the merchant's web server SSL certificate.

- The merchant confirms the order and supplies the goods or services to the customer. The business sends the consumer an invoice, their certificate and their bank's certificate.

- The business then generates an authorization request for customer's credit card and sends it to their bank

- The business's bank then sends the authorization request to the acquirer

- The acquirer sends an acknowledgement back to the business's bank after receiving an acknowledgement from the customer's Bank.

- Once the consumer's bank authorizes payment, the business's bank sends an acknowledgement back to the business with an authorization number

Various Online Payment Systems

1. Electronic Tokens

An Electronic token is a digital analog of various forms of payment backed by a bank or financial institution. There are two types of tokens:-

1] Real Time (or Pre-paid tokens) – These are exchanged between buyer and seller, their users pre-pay for tokens that serve as currency. Transactions are settled with the exchange of these tokens. Eg. Digicash , Debit Cards, Electronic Purse etc.

2] Post Paid Tokens – are used with fund transfer instructions between the buyer and seller. Eg. Electronic Cheques, Credit card data etc.

2] Electronic or Digital Cash

This combines computerized convenience with security and privacy that improve upon paper cash. Cash is still the dominant form of payment as : The consumer still mistrusts the banks. The non cash transactions are inefficiently cleared. The properties of Digital cash are :-

- Must have a monetary value
- It must be backed by cash [currency],bank authorized credit or a bank certified cashier's check

- Digital cash is based on cryptographic systems called "Digital Signatures" similar to the signatures used by banks on paper cheques to authenticate a customer.

- Maintenance of sufficient money in the account is required to back any purchase.

- Must be interoperable or exchangeable as payment for other digital cash, paper cash, goods or services, lines of credit, bank notes or obligations, electronic benefit transfers and the like.

3. Electronic Cheques

The electronic cheques are modeled on paper checks, except that they are initiated electronically. They use digital signatures for signing and endorsing and require the use of digital certificates to authenticate the payer, the payer's bank and bank account. They are delivered either by direct transmission using telephone lines or by public networks such as the Internet. Integration of the banking and the information technology industry has benefitted the consumers in many aspects with respect to time, cost and operational efficiency

PREPAID AND POST PAID PAYMENT SYSTEMS

Electronic payment systems are broadly classified in to prepaid and post paid payment systems:

A] Prepaid payment systems

It provides a service that is paid prior to usage. Here the customer is allowed to spend only up to the amount that have pre-determined into the account. This type of payment system is highly useful to those customers who would like to control overspending. E.g. Prepaid debit cards or prepaid credit cards. Prepaid payment system is taken by the customer by depositing money with the credit given company. It can be deposited in the savings account or the current account. Once the money is deposited, the card is used as a regular credit card. It is very effective card as it doesn't put in to debt. Once the money is exhausted in the account, the credit card cannot be used. There is no interest charges related to this card.

Benefits of the pre-paid payment system

1. It is accepted at the entire merchant establishment worldwide according to the affiliation of the credit given company.

2. It can be used to withdraw cash from the ATMs

3. Reloadable anytime anywhere

4. It can be used to withdraw cash in any international currency

5. It is usually backed up by personal accident insurance cover

6. Customer has the facility to get online and track spending , check balance, change pin

Post paid Payment System

This system is like a credit card used to make incremental purchases through the web site. As purchases are made, the accumulated debt on the post paid credit instrument increase until a credit limit is reached, or until an arrangement has made to settle the debt such as monthly payment.

Normally all credit cards are post paid cards. The customer gets the eligibility of spending through the income statement and credit history produced before the credit card company. The customer gets a credit limit and a credit period by which the customer is supposed to pay back the money to the credit card company.

Features of Post paid payment system

- Global acceptance – accepted by all the merchant establishments according to the network set by the credit card company.

- Balance transfer option – It is possible to transfer outstanding funds from one card to other cards with low interest rates.

- Revolver facility – Customer can pay only a small amount of the total outstanding and revolve the rest for the payment o the next month.

- Cash advance facility – Customer can withdraw around 30% of the credit limit at any ATM connected to the credit card company

- Teledraft – These facilities are available at the door steps of the customer

- Other services – Credit card can be used for railway tickets and airline ticket purchase

- Convenience – as the customer is not required to carry cash for any purchase

- Easy availability – holder can load prepaid credit cards at anytime they need.

E-Cash or Electronic cash

E-Cash or Electronic Cash is a new concept to execute cash payment using computers connected with network. E-cash is an electronic medium for making payments. The primary function of e-cash is to facilitate transactions on the Internet. Many of these transactions may be small in size and would not be cost efficient through other payment medium such as credit cards.

Electronic money [also known as e-currency, e-money, electronic cash, electronic currency, digital money, digital cash or digital currency] refers to money or scrip which is exchanged only electronically. Typically, this involves the

use of computer networks, the internet and digital stored value systems. Electronic Fund Transfer and direct Deposit are all examples of electronic money.

E-cash is a system of purchasing cash credits in relatively small amounts, storing the credits in our computer, and then spending them when making electronic purchases over the Internet. The e-cash is the creation of electronic money or tokens, usually by a bank, which buyers and sellers trade for goods and services. It consists of a token, which may be authenticated independently of the issuer. This is commonly achieved through the use of self-authenticating tokens or tamper proof hardware. It includes credit cards, smart cards, debit cards, electronic fund transfer etc.

An e-cash system must have the following properties:-

* Digital cash must have a monetary value. It must be backed by cash

* Digital cash must be exchangeable.

* It should be storable and retrievable

* It should not be easy to copy or tamper with while it is being exchanged

E-cash can be used for making or receiving payments between buyer and seller. The bank's server computer sends a secure e-cash packet to the customer effect the network currency server of the bank is issuing a bank note with a serial number for a specified amount. The bank uses its private key to digitally sign such a bank note.

2. Electronic Cheque

E-cheques are a mode of electronic payments. Integration of the banking and the information technology industry has benefitted the customers in many aspects with respect to time, cost and operational efficiency. Cheque is the most widely accepted negotiable instrument to settle transactions in the world. Paper cheques provide consumers an important payments mechanism.

This technology was developed by a consortium of Silicon Valley IT Researchers and merchant bankers and since then has been promoted by many of the financial bodies. E-cheques work the same way as paper cheques and are a legally binding promise to pay. Electronic cheques are gathered by banks and cleared through existing banking channels, such as automated clearing houses. The advantages of Electronic cheques are :-

➢ The online merchants could receive payments instantly

➢ Similar to traditional cheques and eliminates need for customer education

➢ Much faster

➢ Less chance for cheque bouncing

➢ Cost – effective manner

3. Credit Cards

They are the convenient method of making online payment. Credit cards work around the globe regardless of the location of country of the issuing bank. They also handle multiple currencies through a series of clearing houses. The credit card holders can purchase goods and services either offline or online without making immediate payment. Payment to the merchant's will be made by the customer's Bank. The credit card is a financial instrument which can be used more than once to borrow money or buy products and services on credit. It also contains a validity period and other important particulars.

To accept a credit card for payment, we have to open a merchant account with our bank. A merchant account allows sellers to accept and process credit card transactions. In these transactions, the card number and transaction details are processed with no identification of the buyer. To implement the payments over the internet, the web merchant needs some form of secure and encrypted line using the Secure sockets Layer [SSL] that is standard on Netscape and Microsoft browsers. The merchant server needs an encryption key for the purpose.

4. Smart Card

A smart card is a plastic card about the size of a credit card, with an embedded microchip that can be loaded with data, used for telephone calling, electronic cash payments, and other applications and then periodically refreshed for additional use. A smart card, chip card, or integrated circuit card [ICC] is any pocket sized card with embedded integrated circuits which can process data. The card connects to a reader with direct physical contact or with a remote contactless radio frequency interface. Smart card technology conforms to international standards and is available in a variety of form factors, including plastic cards, fobs, subscriber identification modules [SIMs] used in GSM Mobile phones and USB based tokens.

These cards can be used to purchase goods and services. Smart cards are very useful to merchants and consumers to settle the transaction between them. Smart card provides a lot of benefits to consumers. It helps to manage expenditures more effectively, reduce the paper work and ability to access multiple services and the Internet. A multiple application card can support services like health care, travel and financial data access.

The benefits of smart cards for the consumer are the following:-

1. Security – unauthorized access is prevented by a lock function

2. Convenience

3. Flexibility

4. Control

5. International use

6. Interest free loan

5. Debit Cards

It is a popular method of making payment. Banks issue debit cards to their customers who have maintained an account in the balance with sufficient credit balance. Each time the customer makes a purchase, an equal amount of the purchase is debited in his account.

The transaction works much like a credit card transaction. For Eg. A customer gives an ATM card to the seller for the purchase. The merchant read the card through a transaction terminal and the customer enters his personal identification number. Then the terminal route the transaction through the ATM networks back to the customer's bank for authorization against customer's deposit account. The funds, are approved, are transferred from the customer's bank to the sellers bank.

6. Electronic Purse

Electronic Purse is a card with a microchip that can be used instead of cash and coins for everything from vending machines to public transportation. The Electronic Purse would consist of micro- chip embedded in a credit card, debit card, or stand alone card to store value electronically. The card would replace cash and coins for small ticket purchases such as gasoline stations, pay phones, road/bridge tolls, video games, school cafeterias, fast food restaurants, convenience stores, and cash lanes at supermarkets. Cardholders can "reload" the microchip and control the amount of value stored in the card's memory. The Electronic Purse provides cardholders with the security and convenience of carrying less cash and coins, eliminating the need for exact change.

Electronic purse is a term applied to a number of formats, each with different applications. At the moment, smart card based systems are used as a direct replacement for money that the user would have in his pocket and software based systems are used for online purchases. The e-purse is an electronic / cash less payment option for making small purchases within the campus.

To load an electronic purse, the user must be able to operate an ATM or card loading machine. Usually this requires the user to be able to read a visual display, but methods for alleviating this problem have been developed. To use the electronic purse, the user hands the card to the shop assistant who inserts the card in a terminal and keys in the amount of the transaction. This is displayed visually to the customer. Once again, the person must be able to read a display screen. The customer confirms that the amount is correct, and the money is transferred from the card to the terminal. In some systems the customer need to key in their PIN [Personal Identification Number] before the transaction can be completed.

Security issues on Electronic Payment System

It is recommended that the clients instruct their banks to make the transfer of large payments directly to the agency's bank and not use Internet-based payment systems. In common with all other electronic information processing systems, payment systems are prone to disruption by people exploiting the systems innate vulnerabilities. Those considering employing a payments system must decide whether to accept the consequent risks. Data in computers are more liable to destruction, fraud, error and misuse. Since payment information is so valuable its security is all the more important than other kinds of tangible assets in the organizational context.

Security refers to the policies, procedures and technical measures and to prevent unauthorized access, alteration, theft or physical damage to information systems. The basic objective of information security is the protection of interests of those involved in online business. All electronic information processing systems are vulnerable to denial of service attacks where the attacker employs any one of a variety of methods to prevent a client using a service a provider offers. Such attacks can have the effect of closing down a business. Some of the attacks were as follows:-

- Development of a method of obtaining the goods or services without making the appropriate payment
- Compromise of clients' financial details credit card number, etc, which may result in the unauthorized transfer of funds and or political embarrassment by their publication.
- Illicit modification of the electronic goods offered by the merchant or of the descriptions of the other goods or services on the merchant server
- Other methods permitting the unauthorized transfer of funds.

Solutions to Security issues

1. Anti-Virus Programs

It is reported that 300 new viruses appear each month and if we are not constantly protecting our system against this threat our computer will become infected with at least one virus. Antivirus software scans computers for signatures of a virus. A virus signature is the unique part of that virus. It can be a file name, how the virus behaves or the size of the virus itself. Good antivirus software will find viruses that have not yet infected your PC and eliminate the ones that have. Antivirus program can be used on the server level itself. Such programs can scan the files that the server receives and looks for patterns that match known malicious software. The antivirus scanners are set to update them automatically.

2. Standards for Security of the Products and systems

Security products require special expertise to design, are complex to build, and are very vulnerable to bugs. The manufacturers guarantee is inadequate for security products unless supported by independent evaluation. Defense signals Directorate has set up an evaluation scheme, the Australasian Information

Security Evaluation Programme [AISEP], to test IT security products against international standards. Products which satisfy the standards are certified by DSD and are normally listed on Evaluated Products List.

3. Firewalls

Merchants place firewalls between their installations and their clients. They should also place firewalls between themselves and their payment providers, the financial institutions they use, and in fact, any other installation to which they are connected unless the installation is under their direct control .A network firewall is basically a secure gate between our organizations data and the Internet. The firewall is a combination of hardware and software. The firewall then filters traffic based on our requirements. Firewall security is designed to detect and resists unwanted attempts to penetrate our server security.

4. Secure Socket Layer [SSL]

The standard SSL developed by Netscape provides a high level of protection. Many product manufacturers advertise their use of 56-bit or 128- bit DES encryption and 1024- bit public keys. They can protect against any casual attacks .Browsers that support this feature a dialog box, a padlock in the bottom task bar , or a Blue key to indicate that a secure session is in progress.

5. Secure Electronic Transaction [SET]

SET encrypts payment transaction data and verifies that both parties in the transaction are genuine. SET, originally developed by MasterCard and Visa in collaboration with leading technology providers, has a large corporate backing and is perceived to be more secure as a result of its validation from card companies.

 6. Public Key software Infrastructure [PKI]

PKI is similar to bank's night safe in that many public keys can be used to deposit items into the safe, but only one private key, belonging to the bank can make withdrawals.

BIOMETRICS

Biometrics comprises methods for uniquely recognizing human based upon one or more intrinsic physical or behavioral traits. In computer science, in particular, biometrics is used as a form of identity access management and access control. It is also used to identify individuals in groups that are under surveillance. Biometrics characteristics can be divided into two main classes:-

- ✓ Physiological are related to the shape of the Body. E.g. Fingerprint, face recognition, DNA, hand and palm geometry, iris recognition
- ✓ Behavioral are related to the behavior of a person. E.g. typing rhythm, gait, and voice.

Biometrics is the science and technology of measuring and analyzing biological data. Biometrics is automated methods of recognizing a person based on a physiological or behavioral characteristic.

To verify an individual's identity, biometric devices scan certain characteristics and compare them with a stored entry in a computer database. In Information Technology biometrics refers to technologies for measuring and analyzing human physical and behavioral characteristics for authentication purposes. The simplicity that biometrics lends to secure verification of an individual provides greater opportunities for e-businesses to offer more products and services online.

A biometric system can operate in the following two modes:-

1. Verification – A one to one comparison of a captured biometric with a stored template to verify that the individual is who he claims to be. Can be done in conjunction with a smart card, username or ID number

2. Identification – A one too many comparison of the captured biometric against a biometric database in attempt to identify an unknown individual. The identification only succeeds in identifying the individual if the comparison of the biometric sample to a template in the database falls within a previously set threshold.

Types of Biometrics

There are two types of biometrics: behavioral and physical. Behavioral biometrics are generally used for verification while physical biometrics can be used for either identification or verification. The different types of biometrics under these includes:-

1. Signature

Computers can quantify, analyse and compare the different properties of signature to make signature recognition a viable biometric technology. Being based on things that are not visible [pen pressure and velocity], signature based biometric technology offers a distinct advantage over regular signature verification. A Signature based biometric system could mimic our current legally customary acceptance of a signature to simultaneously convey both identity and authority.

2. Keystroke Dynamics

The rhythms with which one types at a keyboard are sufficiently distinctive to form the basis of the biometric technology known as keystroke dynamics. Key stroke dynamics unlike other biometric technologies is 100% software based, and it just requires a home computer to operate it.

3. Hand geometry

This system requires the subject to place his right hand on a plate where it is photographically captured and measured. Made of 27 bones and a complex web of interconnected joints, muscles, and tendons, the human hand presents a sufficiently peculiar conformation of anatomical features to enable authentication. Airports, prisons, and factories have successfully employed hand geometry system

4. Finger Print

It is a forensic criminological technique, used to identify perpetrators by the fingerprints they leave behind them at crime scenes. In modern biometrics, the features of fingerprint called fingerprint minutiae, can be captured, analyzed, and compared electronically, with correlations drawn between a live sample and a reference sample, as with other biometric technologies.

5. Facial Recognition

With good cameras and good lighting, a facial recognition system can sample faces from tremendous distances without the subject's knowledge or consent. It works by two methods ; facial geometry or eigenface comparison. Facial geometry analysis works by taking a known reference point, say, and distance from eye to eye, and measuring the various features of the face in their distance and angles from this reference point. Eigen face comparison uses a palette of about 150 facial abstractions, and compares the captured face with these abstract faces.

6. Eye biometrics [Iris/ Retina]

Both the iris and the veins of the retina provide patterns that can uniquely identify an individual. The pattern of lines and colors on the eye are, as with other biometrics, analyzed, digitized, and compared against a reference sample for verification.

7. Voice Verification

The identity of a person can also be verified with his voice. It is a difficult problem for computers to identify the voice of a person. The prospect of accurate voice verification offers one great advantage. It would allow a remote identification using the phone system without any additional cost.

MODULE V

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:-

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

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

µ 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.

µ 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.

µ 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.

µ 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.

µ 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.

µ 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.

µ 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:-

- ➢ Electronic contracts will be legally valid

- ➢ Legal recognition of digital signatures

- ➢ Security procedure for electronic records and digital signature

- ➢ Appointment of certifying authorities and controller of certifying authorities including recognition of foreign certifying authorities.

- ➢ Various types of computer crimes defined and stringent penalties provided under the Act.

- ➢ Establishment of Cyber Appellate Tribunal under the Act.

- ➢ Act to apply for offences or contraventions committed outside India.

- ➢ Power of police officers and other officers to enter into any public place and search and arrest without warrant

- ➢ 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.

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