

E-COMMERCE MANAGEMENT

STUDY MATERIAL

B.COM

III SEMESTER

COMPLEMENTARY COURSE

CU CBCSS

(2014 ADMISSION ONWARDS)



UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

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Complementary Course

E-Commerce Management

2014 Admission Onwards

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MODULE I

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.

By the help of the flexibility offered by computer networks and the availability of the Internet , E-commerce develop on traditional commerce . E-commerce creates new opportunities for performing profitable activities online. It promotes easier cooperation between different groups: businesses sharing information to improve customer relations; companies working together to design and build new products/services; or multinational company sharing information for a major marketing campaign.

The followings are the business uses of the Internet. These services and capabilities are a core part of a successful e-commerce program. They are either parts of a value chain or are included as supporting activities:

- Buying and selling products and services
- Providing customer service
- Communicating within organizations
- Collaborating with others
- Gathering information (on competitors, and so forth)
- Providing seller support
- Publishing and distributing information
- Providing software update and patches

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 to 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 the sixties. It has not gained reasonable acceptance until the 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 the 1990s. The web became a popular mainstream medium (perceived as the fourth mainstream medium in addition to print, radio and TV) in a speed, which had never been 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.

E-Commerce and Value Chain

Typical business organizations (or parts within a business organization) **design** , **produce** , **market** , **deliver** , and **support** its product(s)/service(s). Each of these activities adds cost and value to the product/service that is eventually distributed to the customer. The value-chain consists of a series of activities designed to satisfy a business need by adding value (or cost) in each phase of the process. In addition to these primary activities that result in a final product/service, supporting activities in this process also should be included:

- Managing company infrastructure
- Managing human resources
- Obtaining various inputs for each primary activity
- Developing technology to keep the business competitive

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 enable 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 :
The cost of the processing EDI documents is much lower than processing paper documents
- Improves the overall quality of data :
Improvements in overall quality can be achieved through better record keeping, fewer errors in data, reduced processing time and less reliance on human interpretation
- Helps to reduce inventory level:
Inventory level can be reduced. EDI permits faster and accurate filling and exchange of orders which helps to reduce the unwanted level of inventory.
- Data is entered only at the source :
Transfer of information from computer to computer is automatic and there is no need of feeding data frequently. Helps to manage information system effectively and efficiently.
- Customer relations can be improved :
Customer relations are improved through better quality and speed of services. Business relations with trading partners can also 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.

Drawbacks:

1. High cost:

One of the severe criticisms levelled against EDI is its high cost. EDI applications are costly to develop and operate.

2. Limited accessibility:

EDI applications do not allow consumers to communicate and transact with the suppliers in an easy and a direct way, as Networking facilities require certain software to access and communicate forms through EDI.

3. Rigid requirements:

EDI applications require highly structured protocols, software etc for information interchange. EDI insists up on transacting parties to follow rigid agreements about the structure and meaning of data. These agreements are time consuming to negotiate, rigid and difficult to maintain.

4. Partial solutions:

EDI applications suggest only partial solutions to organisation in their transacting process. Complete automation of transacting process is difficult to materialise in the constantly changing business environment. There will be time gap between placing order for products and the final settlement of bills. This may lead to discrepancies between transactions.

5. closed world:

The scope of EDI application is very limited. The concept of closed world is outdated consequent on the popularity of WWW makes it easier for organisations to enter into open web related market place.

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.

E-Commerce offers the following benefits to Business organisations.

Benefits of E-Commerce

E-Commerce offers the following to business organisations.

1. International market place:

The market for a Web based business is not restricted bound by any geographical boundaries. This means that various restrictions existing in different geographical regions in traditional business environment is avoided in e-commerce. Goods can be sold in new markets, especially geographically remote ones.

Single physical marketplace located in a geographical area has now become a borderless marketplace including national and international markets. E-commerce enables business firms to have access to people all around the world. In effect all e-commerce businesses have become virtual multinational corporates.

2. Operational cost savings:

The cost of creating, processing, distributing storing and retrieving paper-based information has decreased. This has led to the savings of cost.

3.Reduced inventories and overheads:

E-commerce firms need not stock large inventory. This is based on collecting the customer order and then delivering through JIT (just-in-time) manufacturing. This is particularly beneficial for companies in the high technology sector, where stocks of components held could quickly become obsolete within months. For example, companies like Motorola mobile phones, and Dell computers gather customer orders for a product, transmit them electronically to the manufacturing plant where they are manufactured according to the customer's specifications like colour and features and then sent to the customer within a few days.

4. Mass Customisation:

E-commerce has revolutionised the way consumers buy goods and services. In the e-commerce environment firms are able to customise their products and services to the customer's requirements. In the past when Ford first started making motor cars, customers could have any colour so long as it was black. Now customers can configure car according to their specification within minutes on-line via the www.ford.com website.

5. Lower telecommunications cost:

The Internet is much cheaper than value added networks (VANs) which were based on leasing telephone lines for the exclusive use of the organisation and its authorised partners. It is also cheaper to send a fax or e-mail via the Internet than direct dialling.

6. Digitalization of products and processes:

Digitalisation of products and processes particularly in the case of software and music / video products, which can be downloaded or e-mailed directly to customers via the Internet in digital or electronic format within 24-hour-time. Businesses can be contacted by or contact customers or suppliers at any time.

Benefits of E-Commerce to Consumers

E-Commerce provides many benefits to consumers as well.

1. Easy Accessibility:

E-commerce enables customers to shop or conduct other transactions 24 hours a day, all year round from almost any location. For example, a customer can check his balances, making payments, obtaining travel and other information.

2. More choices:

Customers can now choose a wide range of products and customise. He can buy goods and services even from an international selection of suppliers.

3. Price comparisons:

Customers can 'shop' around the world and can make price comparisons either directly by visiting different sites, or by visiting a single site where prices of different sellers are exhibited.

4. Improved delivery processes:

This can range from the immediate delivery of digitised or electronic goods such as software or audio-visual files by downloading via the Internet, to the on-line tracking of the progress of packages being delivered by mail or courier.

Benefits of E-Commerce to Society

E-commerce is also useful to the society as described below.

1. Flexible working practices:

E-commerce enables more flexible working practices, which enhances the quality of life or people in society, enabling them to work from home. This is more convenient and provides happiest and less stressful working environments ; it also reduces environmental pollution as few people have to travel to work regularly.

2. Connects people:

This also helps people in both developing countries and rural areas to enjoy and access products, services, information and other people which otherwise would not be so easily available to them.

3. Facilitates delivery of public services:

E-commerce also facilitates delivery of public services. For example, public can make use of health services available over the Internet for on-line consultation with doctors or nurses, filing tax return over the Internet through the website.

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

There was much publicity of Internet and E-Commerce over the last few years. But this type of commerce is not free from defects. These again will be dealt with according to the three major stakeholders - organisations, consumer and society.

Limitations or disadvantages of E-Commerce to Organisations

1. Security:

One of the important limitations of e-commerce is the lack of sufficient system security, reliability, standards and communication protocols. There are numerous reports of websites and databases being backed into, and security loop holes in software. For example, Microsoft has over the years issued many security notices for their software. Several banking and other business websites have experienced breaches in security where a technical oversight or a fault in its systems led to confidential client information becoming available to all.

2. Pressure for innovation:

Under pressure to innovate and develop business models to exploit the new opportunities may sometime leads to strategies harmful to the organisation. The ease with which business models can be copied and imitate over the Internet increase that pressure and restrict longer-term competitive advantage.

3. Price wars:

Facing increased competition from both national and international competitors often leads to price wars and subsequent occurrence of losses for the organisation.

4. Problems with compatibility of older and new technology:

There are problems where old business systems cannot communicate with web based and Internet infrastructures, leading to some organisations running almost two independent systems where data cannot be shared. This necessitates the firm to invest in new systems which connect the different systems. In both cases this is both costly as well as difficult to the efficient running of organisations.

Limitations of E-Commerce to Consumers

1. Financial commitment:

Computing equipment is needed for individuals to participate in the new 'digital' economy, which means an initial capital cost to customers'.

2. Computer literacy:

A basic technical knowledge is required of both computing equipment and navigation of the Internet and the World Wide Web.

3. Cost of internet:

Cost of access to the Internet, whether dial-up or broadband tariffs, is another important limitation.

4. Cost of computing equipment:

Not only the initial cost of buying equipment but additional investment to update technology regularly to be compatible with the changing requirement of the Internet, websites and applications is also a major limitation.

5. Lack of security and privacy of personal data:

There is no real control of data that is collected over the Web or Internet. Data protection laws are not universal and so websites hosted in different countries may or may not have laws which protect privacy of personal data.

6. No personal contact:

Physical contact and relationships are replaced by electronic processes. Customers are unable to touch and feel goods being sold on-line or gauge voices and reactions of human beings. A lack of trust exists because they are interacting with faceless computers.

Limitations of E-Commerce to Society

1. Breakdown in human interaction:

As people become more used to interacting electronically there could be an erosion of personal and social skills which might eventually be harmful to the world we live in where people are more comfortable interacting with a screen than face to face.

2. Social division:

There is a potential danger that there will be an increase in the social divide between technical haves and have-nots - so people who do not have technical skills become unable to secure better-paid jobs and could form underclass with potentially dangerous implications for social stability.

3. Wasted resources:

As new technology outdates quickly, creates the problems to dispose of all the old computers, keyboards, monitors, speakers and other hardware or software.

4. Facilitates Just-In-Time manufacturing:

This could potentially damage an economy in time of crisis as stocks are kept to a minimum and delivery patterns are based on pre-set levels of stock which last for days rather than weeks.

5. Difficulty in policing the Internet:

This means that numerous crimes can be committed and they often go undetected. This is also a rise in the availability and access of obscene material and ease with which others can entrap children in chat rooms.

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 UNCITRAL 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.

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 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.

Objectives of SCM

The following are the main objectives of supply chain management.

To reduce inventory cost

To increase sales

To improve the coordination and the collaboration with suppliers, manufacturers and distributors.

Components of SCM System

The components of a supply chain system consist of the following.

1. SCM Software and Hardware

2. Business Processes

Business processes of supply chain include supply chain planning, execution and collaboration and operational control.

3. Users

The users of SCM system are workers of supply of participants at all levels.

Processes of supply chain management

The supply chain management consists of various processes to achieve its desired objectives. These processes are briefly explained below.

1. Demand Planning and forecasting:

Accurate demand forecasting is considered one of critical success factors in supply chain management. Supply chain software systems often utilize sophisticated mathematical models for predicting is largely dependent on how abnormal data is treated in the demand forecasting. Demand forecasting is an ongoing process. Supply of chain management systems can generate warnings at different intervals according to user preference, whether it is on a weekly or monthly basis.

2. Procurement:

Procurement is the process of choosing the suppliers that will deliver the goods and services that needed to manufacture or assembly products or to create services. It involves price negotiation, receiving, and verifying the shipments. Supply chain management systems can be integrated with industry - specific B2B exchanges to automate the procurement processes.

3. Manufacturing and Assembly:

Raw components are assembled into final products or raw materials are manufactured into finished goods. Manufacturing involves the activities of production, testing, packaging and preparation for delivery.

4. Distribution:

Products or services are finally delivered to consumers. This requires distribution. Distribution involves warehousing, delivering, invoicing and collection of payments.

5. Return:

Return and refund are other important aspects of supply chain management and also the problematic aspect of it. Supply chain management systems should develop sufficient infrastructure for receiving defective and excess products back from customers.

Supply Chain Planning

Supply chain planning includes demand forecasting, inventory simulation, manufacturing planning and transportation scheduling. While supply chain planning is part of enterprise strategic planning, supply chain execution is part of managerial and operational control. .

Supply chain planning involves the following aspects.

1. Demand Forecasting:

An important success factor to supply chain management is accurate demand forecasting. Sophisticated mathematical models can be used for predicting future demand from historical data.

2. Inventory Simulation:

Inventory simulation estimates appropriate stock levels from historical inventory data. When a discrepancy occurs in the eco computer system, inventory specialists need to reconcile the discrepancy.

3. Manufacturing Planning:

Manufacturing planning is concerned with the co-ordination of all manufacturing activities. It tries to achieve the optimal use of raw materials, manufacturing equipment and skilled labours based on orders placed by individual customers.

4. Transportation Scheduling:

Transportation scheduling epitomises the use of resources in shipping raw materials from suppliers to manufacturers and in delivering of finished goods from manufacturers to distributors and customers. Transportation planning module or manufacturers to distributors and customers. Transportation planning module of SCM utilizes linear and / or non-linear programming from Operations Research to ensure the delivery of materials and goods at right time, to right place at a minimal cost.

Supply chain execution

Planning is considered a part of enterprise strategic planning. On the other hand, supply chain execution is about managerial and operational control. Supply chain execution is the process of putting supply chain planning into action.

Supply chain execution involves the following.

1. Order processing:

In supply chain execution, order processing involves order placement, order confirmation, order fulfillment and order inquiry. Supply chain management software has built-in capability that allows both workers and trading partners to easily place orders. Orders are confirmed by e-mail notifications and on-line confirmation. Users can easily lookup their orders status on-line.

2. Production & Assembly:

In manufacturing or production phase, raw components are assembled into final products or raw materials are manufactured into finished goods. Workers perform products or raw materials are manufactured into finished goods. Workers perform activities such as kitting, packaging and labelling work for specific products. Manufacturing involves production, testing, packaging and preparation for delivery.

3. Distribution:

After manufacturing, products or services are to be delivered to distributors or to final consumers. Distribution involves warehousing, delivering, invoicing and payment collection. Distribution management is integrated with transportation planning and scheduling.

4. Return:

Handling return and refund is important part of supply chain execution. Lack of planning and logistics for processing return or refund have been a common problem in supply chain execution. Supply chain management systems should have infrastructure in place for receiving defective and excess products back from customers.

Supply Chain Collaboration:

Successful implementation of a supply chain management system improves the efficiency of collaboration between suppliers, manufacturers and distributors the collaboration of material flows, information flows and financial flows.

1. Collaboration of Material Flows:

The move of raw materials and components in the supply chain is a two-way traffic. It involves the move of physical product flowing from suppliers, manufacturers, and distributors to customers through the supply chain, and the move of products from consumers to distributors, and manufacturers as a result of product returns, recycling or disposal.

2. Collaboration of Information Flows:

The smooth flow of information within a supply chain facilitates supply chain planning, which involves demand forecasting, inventory simulation, manufacturing planning, and transportation scheduling.

3. Collaboration of Financial Flows:

Along with the move of physical product and order transmission, supply chain collaboration involves the settlement of financial transaction such as credit card information, purchase order, payment schedules and title ownership arrangements.

4. Collaboration of Workforce Flows:

The breed of Supply Chain Management tools helps the collaboration of workforce across the entire supply chain. For instance, some companies are focusing on workforce management in manufacturing processes. Software applications are designed to maximally utilize the skills of employees across the supply chain.

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.

Importance of supply chain in e-commerce

1. Cost Efficiency :

E-commerce allows transportation companies of all sizes to exchange cargo documents electronically over the internet. By using e-commerce, companies can reduce costs, improve data accuracy, accelerate business cycles and enhance customer services.

2. Changes in the distribution system :

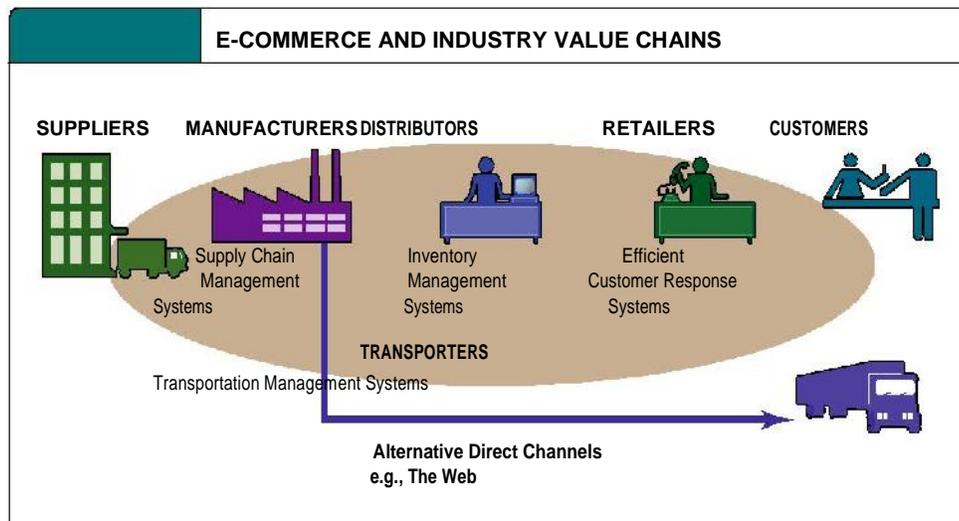
E-Commerce will give businesses more flexibility in managing the increasingly complex movement of products and information between businesses, their suppliers and customers.

3. Customer orientation :

E-commerce will help companies deliver better service to the customers, and lower their operating costs. E-commerce makes it easier for customers to do business with the companies.

4. On-line shipping enquiry :

This gives instant shipping information access to anyone in the company, from any location. A customer's transportation costs and performance can be analysed, thus helping the customer negotiation and improved services.



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.:-

commerce models are either an extension or revision of traditional business models, such as advertising model, or a new type of business model that is suitable for the Web implementation, such as info-mediary. Merchant, brokerage, advertising, mixed, info-mediary, subscription are the most popular e-commerce models: [2]

- **Merchant model:** This model basically *transfers the old retail model to the e-commerce world* by using the Internet. There are different types of merchant models. The most common type of merchant model is similar to a traditional business model that sells goods and services over the Web.
Amazon.com is a good example of this type. An e-business similar to Amazon.com utilizes the services and technologies offered by the Web to sell products and services directly to the consumers. By offering good customer service and reasonable prices, these companies establish a brand on the Web. The merchant model is also used by many traditional businesses to sell goods and services over the Internet. Dell, Cisco Systems, and Compaq are popular examples. These companies eliminate the middleman by generating a portion of their total sale over the Web and by accessing difficult-to-reach customers. An example that uses this model is Amazon.com Corporation.
- **Brokerage model:** The e-business *brings the sellers and buyers together* on the Web and collects a commission on the transactions by using this model. The best example of this type is an online auction site such as eBay, gittigidiyor.com which can generate additional revenue by selling banner advertisement on their sites.
- **Advertising model:** This model is an extension of traditional advertising media, such as television and radio. Search engines and directories such as Google and Yahoo provide contents (similar to radio and TV) and allow the users to access this content for free. By creating significant traffic, these e-businesses are able to charge advertisers for putting banner ads or leasing spots on their sites.
- **Mixed model:** This model generates revenue both from advertising and subscriptions. Internet service providers (ISPs) such as America On-line (AOL), and SuperOnline generate revenue from advertising and their customers' subscription fees for Internet access.
- **Info-mediary model:** E-businesses that use this model collect information on consumers and businesses and then sell this information to interested parties for marketing purposes. For instance, bizrate.com collect information related to the performance of other sites and sells this information to advertisers. Netzero.com provides free Internet access; in behavior of customers. This information is later sold to advertisers for direct marketing. eMachines.com offers free PCs to its customers for the same purpose.
- **Subscription model:** An e-business might sell digital products to its customers, by using this model. *The Wall Street Journal* and *Consumer Reports* are two examples. Sreet.com, AjansPress.com is another example of this model that sells business news and analysis based on subscription

CATEGORIZING E-COMMERCE BUSINESS MODELS: SOME DIFFICULTIES

There are many e-commerce business models, and more are being invented every day. The number of such models is limited only by the human imagination, and our list of different business models is certainly not exhaustive. However, despite the abundance of potential models, it is possible to identify the major generic types (and subtle variations) of business models that have been developed for the e-commerce arena and describe their key features. It is important to realize, however, that there is no one correct way to categorize these business models.

Our approach is to categorize business models according to the different e-commerce sectors—B2C, B2B, C2C, etc.—in which they are utilized. You will note, however, that fundamentally similar business models may appear in more than one sector. For example, the business models of online retailers (often called *e-tailers*) and e-distributors are quite similar. However, they are distinguished by the market focus of the sector in which they are used. In the case of e-tailers in the B2C sector, the business model focuses on sales to the individual consumer, while in the case of the e-distributor, the business model focuses on sales to another business.

The type of e-commerce technology involved can also affect the classification of a business model. *M-commerce*, for instance, refers to e-commerce conducted over wireless networks. The e-tail business model, for instance, can also be used in m-commerce, and while the basic business model may remain fundamentally the same as that used in the B2C sector, it will nonetheless have to be adapted to the special challenges posed by the m-commerce environment.

Finally, you will also note that some companies use multiple business models. For instance, eBay.com can be considered as a B2C market maker. At the same time, eBay can also be considered as having a C2C business model. If eBay adopts wireless mobile computing, allowing customers to bid on auctions from their telephones or wireless Web appliances, then eBay may also be described as having a B2C m-commerce business model. We can expect many companies will have closely related B2C, B2B, and m-commerce variations on their basic business model. The purpose will be to leverage investments and assets developed with one business model into a new business model.

The several types of e-commerce in use today are classified based on the nature of the transactions: business-to-consumer (B2C), business-to-business (B2B), consumer-to-consumer (C2C), consumer-to-business (C2B), and non-business and government, and organizational (intra-business).

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 be 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

Steps to E- Commerce :Before you can start selling your goods and services on-line there are several steps they are

1. **Generating Demand:** Get people of your site and then convert the lookers into buyers. Advertising on the internet is one way to get people to your site.
2. **Ordering & Fulfilment :** Once a consumer is at your site you need them to place an order. This can be achieved by simplifying the ordering process. After that, fill and ship your customers orders in a timely manner and keep them informed of the progress of their order.
3. **Process Payment:** You have to choose any of the available methods for processing payments such as cash Model, Cheque Model or Credit Model. The Processing of Payments is discussed in more detail later
4. **Service & Support :** The needs of your customers can be met by providing exceptional customer support and services .saving information about customers is much helpful in processing their order next time. This information can also be used to offer them special discounts on the products they buy, appealing their return
5. **Security :** Consumers should know that their transactions over the internet are secure, Using SSL (secure sockets layer) and digital certificates provide the necessary security.

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 products.

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.

5. Pricing

One of the main reasons why consumers buy online is to save money. besides convenience, the internet has always been a place for the consumers to compare prices and buy what they are looking for at the best possible price.

6. User Friendliness

The price is indeed important, but User- Friendliness and easy of use of store is really the decisive factor.

7. Product Line

A niche product line is a very good thing. The product that we offer is available with other sellers like on Amazon, and then we should ask ourselves what we can offer as a value-add, such as service, information, guarantees and possibly some entertainments.

8. Adequate stock level

A new Customer could definitely be turned-off by desiring a product that is in backorder.

9. Quickness

Websites should load quickly. Every component of the site should move fast in order to avoid customers leaving the site.

10. Exhibit information clearly

It is important that all companies should post th contacts more visibly for easy access in the cas of any problem to the customers

Reasons for the failure of E-commerce:

There are quite a few mistakes that unsuccessful e-commerce businesses have in common. The important among them are the following.

1. Poor Management:

The main reason for failure of e-commerce is poor management. Many e-commerce business starts without planning and in many cases business may not be suitable for an on-line market.

2. A poorly designed website:

A professional website needs to feature the items clearly with photos and descriptions. Another issue is too much colour, flash animation or graphics that slowed down the downloading process.

3. Lack of marketing:

Marketing of the site is needed for both on-line and off-line. Firms have to identify their competitive advantage, and to show the customers the best price that can be offer.

4. Selling the wrong product on-line:

There are products that are not suitable to be sold on-line. Products which are inexpensive, and could be easily bought from the local store are not worth selling on the Internet. Products that need trying would be difficult to sell.

5. Poor order fulfilment:

Information on the Internet spreads like anything. If words of unhappiness are being spread around to potential customers, the reputation would be damaged. Therefore, create a good impression on customers by fulfilling their orders according to their wishes.

6. Poor customer service:

Poor customer service would send our customers running away. Providing excellent service would not only satisfy our customer, but also bring in potential customers.

7. Inadequate Resources:

A majority of these companies were expecting to experience tremendous growth in the foreseeable future and when that did not happen they had no saved capital.

8. Poor Channel Integration:

A common mistake committed by firms is poor channel integration. Some companies may just try to market their goods or services via the Internet and ignore the other channel such as catalogues and physical stores.

9. Ignoring Customers:

Another common mistake that some of these companies have made is ignoring the customers. Some companies did not focus on customer fulfilment or product availability.

10. High Cost:

Another major mistake is that some e-commerce companies did not pay attention to its costs. Most of the companies that fail run through an enormous amount of money in a relatively short period of time.

11. Poor Planning:

Lastly, and greatest of all, mostly all failed e-commerce companies have done poor planning. These companies have focused too much energy on low prices and not enough on product diversification and good service.

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 mail 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

Internet Protocols

The most commonly used protocols are

1. Transmission Control Protocol/ internet protocol (TCP/IP)
2. File Transfer Protocol(FTP)
3. Hyper Text Transfer Protocol (HTTP)
4. Telnet
5. Gopher
6. Wide Area Information Service (WAIS)

The different uses of internet in Business:

Business Use of Internet :

Business concerns use internet for a variety of purpose. Some of the major use of interest in the business field are enumerated below.

1. Access to database:

Internet is highly useful to a business to access complex databases. For example with the help of internet, a company can access financial database.

2. Electronic Commerce:

Now a days, commercial on internet is becoming popular. Buying and selling products and services on internet is called electronic commerce. Companies can carry out electronic commerce including advertising, selling, buying, distributing products and providing after sales service.

3. Electronic Mail:

A major use of internet in the field of business is for speedy communication. The electronic mail (E-mail) is widely used by companies to communicate faster between companies, customers, workers and outsiders.

4. Companies area also making use of internet to conduct both audio and video conferencing to discuss important issues by executives locating at distant places.

5. Worldwide audience:

The Internet is a worldwide network allowing the business to reach people all over the world. It helps to capture the attention of customers even very expensive advertising could not achieve.

6. Provide product information:

Internet give customers direct access to information about your products. Some people prefer to collect information about products by themselves. The Internet has a great ability to make information about your company's products or services available to potential customers.

7. Save on literatures costs:

Providing the information on-line reduces the need to print and mail product literature, thereby resulting in significant cost reductions.

8. Provide easy access to customer service representatives:

Human interaction cannot to totally replaced by even the best graphical interface. When customers have a question, or would like to speak with a person, provide a list of contacts and phone numbers or allow them to send e-mail directly to customer service representative, requesting that they be contacted.

9. Recruit new employees:

Many companies provide current information about job openings and attract talented people from places they could not reach otherwise.

10. Provide on-line service:

Many products and services can be delivered over the Internet. Online service will become an even brighter option for many businesses. Since the transaction is electronic, billing and inventory control can be automated, increasing accuracy and reducing your accounting and product storage costs.

11. Eliminate the middleman:

Middlemen exist in some industries where there are barriers to direct contact between producers and consumers. The Internet is a vehicle for removing these barriers. This lower prices for consumers and increases profits for producers.

12. Entertainment programs:

Media and entertainment companies use the internet to broadcast audio and video, including live radio and television programs.

Intranets and Extranets

Intranets

An intranet is an internal, secured business environment, which uses HTML and TCP/IP 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.

Advantages of Intranet:

Intranet offers of following advantages.

1. Workforce productivity:

Intranets can be very beneficial in increasing the work force productivity because employees can easily collaborate and share information. Intranets can help users to locate and view information faster and use applications relevant to their roles and responsibilities. With the help of a web browser interface, user can access data held in any database the organization wants to make available, anytime and from anywhere within the company workstations. Intranet also increase the ability of employee's by performing their job confidently very fast, and accurately. It also helps to improve the services provided to the users.

2. Information sharing:

Intranet permits business companies to share out information to employees according to their need or requirements. Employees may also link to appropriate data at their expediency.

3. Communications:

Intranets can serve as powerful tools for communication within an organization. Easy and instant communication can be done by intranets in the situations where emergency call for conferences is made. The well known examples of transportation are chat, e-mail, and blogs. An actual world example of Intranet is Nestle had a number of food processing plants.

4. Web publishing:

Web publishing is another important advantage which allows organizations to up-to-date and maintain the online information as required and anytime. Employees can stay updated with the latest business update and standards, policies and orders. Web publishing allows bulky corporate knowledge to be maintained and easily accessed throughout the company using hypermedia and Web technologies. Example include : employee manuals, benefits documents, company policies, business standards, newsfeeds, and even training, can be accessed using common Internet standards. Because each business unit can update the online copy of a document, the most recent version is always is always available to employees using the intranet.

5. Business operations and management:

Intranets are also being used as a platform for developing and deploying applications to support business operations and decisions across the internet worked enterprise.

6. Time saving:

Another advantage of Intranet is time saving because there is no need to maintain physical documents such as procedure manual, requisition forms, and internet phone list. As organizations using intranets in their networks can distribute information on website rather than posting and dispatching manually which save a lot of time and effort.

7. Cost savings:

Intranet working has reduced the cost of the business because all the things and tasks that were done physically can be done easily with web media involved in the networks. Publishing and online information providing has noticeably reduced the printing and manual publishing cost including the transportation cost.

8. Same information:

Through Intranet common corporate culture every user can view the similar information.

9. Team work:

Intranet offer improve teamwork through which teamwork is enabled and all certified users can get access to information.

10. Customized site:

Intranet is a Web-based tool that permits users to produce a customized site according their requirements. We can pull all Internet actions and most wanted content into a single page which make easier to access.

11. Platform Independence:

Another great advantage is the platform independence which means that intranet works doesn't restrict any software specification typically UNIX, Windows. All is required is the access to the global web to view the internal websites. There is no need to install same operating system in all the connected computers.

Drawbacks of intranet

Intranet has great features for interconnected manners but has some disadvantages too.

1. Cost:

Setting up an intranet incurs a cost. Some of this is the direct hardware and software cost. Indirect costs are more difficult to estimate. These include time spent defining the intranet's purpose and choosing which intranet capabilities are essential for the organization. The cost of maintaining the intranet is a major consideration and budgets for upgrading hardware is another element.

2. Security:

Unauthorized access to the intranet is a security issue. An organizational intranet relies on privacy and confidentiality to prevent outsiders accessing sensitive information. An intranet structure should not allow universal access to all information, and people should only have access appropriate to their position in the organization.

Connections between an intranet and the Internet potentially compromises security, by allowing virus infections or system hacking. Staff members should change their passwords regularly and security audits should check the firewall.

3. Productivity:

Information overload is another disadvantage because it reduces productivity. Staff members may end up having to read so much that work decreases. Also, departmental heads may rely on e-mails rather than direct contact with staff to circulate information.

4. Training:

An intranet is a new budget item in itself for any organization. However, added to this cost, management needs to consider two additional ones. First, the staff needs training to ensure workers know how to use the system effectively. In some organizations, a few staff members may resist learning how to share information via the intranet, or try to continue using older methods of disseminating information.

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.

Advantages of Extranet

Extranet offers the following advantages.

1. Provide Information:

Extranets are used to provide information to business partners, clients, special customers, or anyone else who need access to information that would not be meant for the general public. Extranets can contain special pricing information for retailers, resellers, or wholesalers. Extranets might contain detailed product specifications and instructions, resources for product reps, or information on their product's latest features.

2. Sharing of information:

Extranets provide an extremely convenient method for sharing information with business partners and clients. For example, clients know exactly where to find all of the information relating to the projects. The client page can be accessed by anyone in the organization who need to review and have input into the project. Client pages can be accessed from anywhere in the world at any time.

3. Updated content:

Another benefit or extranet is the the extranet's content is always current. Printed material presents the risk that old, out of date information might be in circulation. In contrast extranets "live" in only the place, and therefore the content they contain is always the most up to date. Companies can save a lot of time and money by replacing frequently changing printed versions of information with extranet versions.

4. Eliminate the inefficiencies:

The use of an extranet eliminates the inefficiencies of this process. Instead of maintaining a printed book, the extranet contain the information. This allows the person responsible for the information to keep the extranet current, and anyone who needs the information to access it from there. Additionally, the information is always available right when they need it, rather than of having to wait for an updated book, or a returned call to confirm information.

5. Convenience:

Extranets provides much convenience to exchange information with business partners. Since extranets are usually accessible 24 hours per day and there is relatively no downtime, associates, clients, vendors and other business partners can communicate with business at a time that is convenient for them.

6. Increased Efficiency:

Because of direct access to information, the use of extranets can improve efficiency and increase productivity. For example, a customer can get answers to question regarding the policy information without having to wait for a response from customer service staff. Direct access to business information via extranet enable users' change and update their personal information. This not only increase productivity but also helps to reduce error.

7. Security:

Security is an added advantage of extranet because organization can control the accessing of site and thus gets information regarding the details of parties who access to our data. To grant access to external associates, organization must create openings in our firewalls. Multiple openings in our firewalls create higher risks for unauthorized entries.

8. Cost saving:

While start-up costs may be significant, firm may experience reductions in other expenses areas due to extranet. For example, because your affiliates have direct access to documents on your network, costs associated with mailing or faxing information are significantly reduced or eliminated.

Disadvantages

1. Costly:

Extranets can be costly to apply to maintain within an organization.

2. Protection:

One of big problem is the protection of extranets when dealing with precious information. System access should be controlled and checked properly to protect the system and information going into the incorrect hands.

3. Decrease personal contact:

Extranets can decrease personal face-to-face contact with clients and business partners. This can cause a lack of communication between employees, clients and organization.

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 specifies the way the browser and Web Server communicate. 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.

Advantages of WEB

- It helps in faster communication
- Millions of people have access to the WWW with more and more added everyday.
- Provides Business information
- Customer service
- Opportunity to conduct business access 24*7
- Provide files to download
- Helps in E- Commerce and Advertising

Disadvantages

- Websites may be unreliable
- A website crash is no good to anyone
- Difficulty in reaching the right people
- Creates Bad Publicity
- Theft of personal information (insecurity)
- Spamming
- Virus Threat
- Social Disconnect

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 adaptation 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 allow 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 to 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 an 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 trial 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 from 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 reality, 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.

Describe the major B2C business models.

There are a number of different business models being used in the B2C e-commerce arena. The major models include the following:

- *Portal*—offers powerful search tools plus an integrated package of content and services; typically utilizes a combined subscription/advertising revenue/trans-action fee model; may be general or specialized (portal).
- *E-tailer*—online version of traditional retailer; includes virtual merchants (online retail store only), clicks-and-mortar e-tailers (online distribution channel for a company that also has physical stores); catalog merchants (online version of direct mail catalog); manufacturers selling directly over the Web.
- *Content provider*—information and entertainment companies that provide digital content over the Web; typically utilizes an advertising, subscription, or affiliate referral fee revenue model.
- *Transaction broker*—processes online sales transactions; typically utilizes a trans-action fee revenue model.
- *Market creator*—uses Internet technology to create markets that bring buyers and sellers together; typically utilizes a transaction fee revenue model.
- *Service provider*—offers services online.
- *Community provider*—provides an online community of like-minded individuals for networking and information sharing; revenue is generated by referral fees, advertising, and subscriptions.

Describe the major B2B business models.

The major business models used to date in the B2B arena include:

- *E-distributor*—supplies products directly to individual businesses.
- *E-procurement*—single firms create digital markets for thousands of sellers and buyers.
- *Exchanges*—independently owned digital marketplaces for direct inputs, usually for a vertical industry group.
- *Industry consortia*—industry-owned vertical digital markets.
- *Single-firm networks*—company-owned private industrial networks to coordinate supply chains with a limited set of partners.
- *Industry-wide networks*—industry-owned private industrial networks to set standards, coordinate supply and logistics for an industry.

Recognize business models in other emerging areas of e-commerce.

A variety of business models can be found in the consumer-to-consumer e-commerce, peer-to-peer e-commerce, and m-commerce areas:

- *C2C business models* connect consumers with other consumers. The most successful has been the market creator business model used by eBay.com and Half.com.

SEVEN UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY

FEATURE	SELECTED IMPACTS ON
BUSINESS ENVIRONMENT	
Ubiquity	Alters industry structure by creating new marketing channels and expanding size of overall market. Creates new efficiencies in industry operations and lowers costs of firms' sales operations. Enables new differentiation strategies.
Global reach	Changes industry structure by lowering barriers to entry, but greatly expands market at same time. Lowers cost of industry and firm operations through production and sales efficiencies. Enables competition on global scope.
Universal standards	Changes industry structure by lowering barriers to entry and intensifying competition within an industry. Lowers cost of
Richness	industry and firm operations by lowering computing and communications costs. Enables broad scope strategies. Alters industry structure by reducing strength of powerful distribution channels. Changes industry and firm operations cost by reducing reliance on sales forces. Enhances post-sales support strategies.
Interactive	Alters industry structure by reducing threat of substitutes through enhanced customization. Reduces industry and firm costs by reducing reliance on sales forces. Enables Web-based differentiation strategies.
Personalization/Customization	Alters industry structure by reducing threats of substitutes, raising barriers to entry. Reduces value chain costs in industry and firms by lessening reliance on sales forces. Enables personalized marketing strategies.
Information density	Changes industry structure by weakening powerful sales channels, shifting bargaining power to consumers. Reduces industry and firm operations costs by lowering costs of obtaining, processing, and distributing information about suppliers and consumers.

MODULE III

MARKETING STRATEGIES AND E-COMMERCE

What is WEB?

The web is the collection of distributed documents referred to as pages located on computers or servers all over the world. Server stores hypertext mark-up language(HTML) files and respond to requests. Users can access documents through the use of a browser.

A website is very essential to conduct e-commerce. The success or failure of e-commerce to a greater extent 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 Locator 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 user 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 starts 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 consists 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 thereby 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.

TYPES OF WEB PAGES

1. Summary page or an Index page is to provide links to other pages.
2. Content page provides rich information to the user.
3. Interactive page, users actions or choices impact what they will see next whether on the same page or next page
4. Support page help users understand content page and/or complete tasks on interactive pages.

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

PROCESS OF SETTING UP WEBSITE FOR E-COMMERCE

Process of setting up website for e-commerce

Process of setting up website for e-commerce involves the following steps.

1. Planning the site:

The planning the site is the first step in setting up of web site for commerce. It is the blue print for designing form, function, navigation an interface. Planning is covers the determination of the goals of designing the web site for e-commerce. We see many web sites for e-commerce. Some of these sites are good, however many of these sites are bad and not attractive. This mainly happens because of the absence of proper homework before we actually develop the website.

Thus the main objective of building a site should be the following.

1. Speed up the interactive process.
2. Reduce the human intervention to the minimum level.
3. Save time
4. Make the buying and selling cheap.

There is a need for creating an effective structure for the site. Besides, we must also think about the contents of the site. Along with these it is also essential to determine the mission and short term and long term objectives of the site, the type of customers who may visit our site etc.

2. Define the Audience and Competition:

There should be a concrete idea regarding the type of people or customers who will be visiting an e-commerce site. The whole success or failure of site depends on the visitors. Therefore it is highly essential to determine not only the types of customers but also their goals and objectives. It is better to make a list of prospective visitors and to classify them according to their nature of dealings. Once it is decided the type of customers and their nature of behaviour, it will be able to develop a site to the aspirations of customers.

The second part of this stage is competitive analysis. Organisation must also think about their competitor while designing the site. Make a list of competitors websites, evaluate them and determine whether any change is required to be included in our site to meet the complete needs of customers.

3. Consultation:

The process of developing an appropriate website can be handed over to a professional web designer. The process can be started with an initial consultation with them. The consultation stage in the website design is very crucial because it helps to the designer to identify the objectives of business or organisation, and to review the products, services, and information or resources. It is also necessary to evaluate the need for domain name dna website hosting options. Based on this they will be able to provide with a scope document that summarizes the objectives of website and outlines the content and navigational structure.

4. Planning and Review of Existing Materials:

At this point it is necessary to review the existing forms of advertising and the methods currently used to promote products, services, or information. The designers will also evaluate the source for the content of web site : product and price lists, newsletters, manuals, articles, forms, policies, charts, and company or organization information.

In order to make the website dynamic, provision can be made to give sensitive information that we want to publicize such as announcements, schedules, events, meetings, sales, and special activities or campaigns. We may also want to schedule periodic content updating for certain portions or our website.

5. Development of the Web site:

Based on the scope document, designer can now proceed to the actual design and construction of the website. They may use graphic material so that appropriate graphics can be created. The logo of the organisation can also be included in the website. Due importance should be given to the contents of the site. For example, the home page should contain basic information about the company, its departments, its privacy policy and name of officers.

A list of information that can be included in the home page of a website are given below.

1. Company Logo
2. A catalogue of products with pictures.
3. A brief description about the company
4. A page of testimonials from loyal customers.
5. A form for placing an online order.

Appropriate use of HTML Meta tags and effectively presented text, will help our website get high listings in the search engines. This is critical to getting traffic to our web site, and can make the difference between success and failure.

6. Upload and Test:

The last step is to upload the initial version of the website to the Internet Service Provider (ISP). The site should be thoroughly tested in order to validate all hyperlinks and e-mail addresses, to make sure that all forms, buttons, Java scripts etc. work properly, and to test browser compatibility, screen width, and colours. At this point we can review our website and request any changes that would like to be made in the site.

Need for a website

The important reason for having and operating a website are given below :

1. Global Presence:

The global reach of the World Wide Web gives a instant access to global markets. Even if the business is focused on local customers, global reach can never hurt, and often lead to new and unanticipated opportunities.

2. Information Reference:

There is no practical limit to the amount of information that can put on a website. If it is well organized and presented, the volume of information made available will enhance the quality of Website.

3. Professional Image:

A well presented Website today is just as or more important than a business card or any other interface with the customer.

4. Website Reference:

Website domain name can placed on all other marketing materials - business cards, brochures, posters, posters, checks, etc.

5. E-Commerce:

Allowing customers to purchase goods and services on-line is becoming easier and more secure.

6. Customer Contact and Feedback:

A website is a personal and corporate avenue directly to the customer. It allows them to learn about company and to give direct feedback.

7. Customer Education:

A website is a gray way to give customer information that educates them in a about the business. Customers like it because it makes them a better buyer. It benefits the business because customers are more likely to buy from someone who makes them smarter and feeling better about themselves.

8. Links to other websites:

The inclusion of links that customers can click on to view another site makes a website a gateway to the entire World Wide Web. This gives the power to connect that information and helps it to increase business.

9. Links from Other Websites:

It is also easy to make link with other Websites if this is convicted to the Webmaster of the other site to include the reference. Very often they are glass to do this because t enhances the popularity of their Website also.

10. Business Planning:

The process of creating a Website is invaluable in helping to think through the scope and direction of a business.

11. Low Cost:

The monthly cost of maintaining a Website is relatively small in relation to most other costs of running a business. This is facilitated by the constantly improving price and performance of computing and telecommunications.

1. *Planning the site: It is the blue print for designing form, function, navigation and interface. Planning covers the determination of the goals of designing the website for E-Commerce.*
2. *Define the Audience and Competition: There should be a concrete idea regarding the type of people or customers who will be visting the site. The whole sucess or failure of the site depends on the visitors.*
3. *Consultation: The process of developing an appropriate website can be handed over to a professional webdesigner.*
4. *Planning and Review of Existing Materials: It is important to review the existing forms of advertising and the methods currently used to promote products, services, or informations.*
5. *Development of the Website: Company Logo, A catalogue of products with pictures, Abrief description about the company, Apage of testimonials from loyal customers, A form for placing an online order are important in the hopepage while the designer designs the website of the company.*
6. *Upload and test: The last step is to upload the initial version of the web site to the internet service provider(ISP).*

Need for the Website:

1. *Global presence*
2. *Information reference*
3. *Professional image*
4. *Website reference*
5. *E-Commerce*
6. *Customer contact and Feedback*
7. *Customer education*
8. *Provide links to other websites*
9. *Links from other website*
10. *Business planning*
11. *Low cost.*

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 various 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	Dogpile
Alta vista	Metacrawler
Yahoo	Lycos
MSN	Hotbot
Ask.com	

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 portrays 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 one 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.

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.

E- Branding:

E- Branding is an important marketing Strategy for creating new markets and securing repeated customers. It is the creation and development of Communicating strategies specifically for brands to have meaning and context to the WEB.

Importance of E-Branding:

1. Good advertising asset
2. Acknowledgement
3. Reputation
4. Familiarity and Loyalty
5. Successful marketing Strategy
6. Expand customer relationship
7. Deepen the market penetration
8. Lead generation

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

Business Application of M-commerce:

Business to customer applications

1. Advertising & promotion
2. Store Location
3. In-store Navigation
4. Comparison shopping
5. Information & extended packaging of information
6. Data- rich product
7. Interactive TV
8. Coupons
9. Ticketing
10. Payments.

Business to Business applications:

1. Ordering
2. Delivery Confirmation
3. Stock Control
4. Authentication
5. Supply chain Information
6. Distributed teams & Collaboration

Success Factors of M- Commerce

M-Commerce is an emerging market.

1. Innovative Business model
2. Consumers adoption
3. Technology availability
4. interoperable system
5. Has become a part of human life

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 led 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 :-

1. The online merchants could receive payments instantly
2. Similar to traditional cheques and eliminates need for customer education
3. Much faster
4. Less chance for cheque bouncing
5. 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:-

- a. Security – unauthorized access is prevented by a lock function
- b. Convenience
- c. Flexibility
- d. Control
- e. International use
- f. 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.

Main security requirements for e-payment

authorization

- a payment must always be authorized by the payer
- needs payer authentication (physical, PIN, or digital signature)
- a payment may also need to be authorized by the bank

data confidentiality and authenticity

- transaction data should be authentic
- external parties should not have access to data
- some data need to be hidden even from participants of the transaction
 - the merchant does not need to know customer account information
 - the bank doesn't need to know what the customer bought

availability and reliability

- payment infrastructure should always be available
- centralized systems should be designed with care
 - critical components need replication and high level of protection

atomicity of transactions

- all or nothing principle: either the whole transaction is executed successfully or the state of the system doesn't change
 - in practice, transactions can be interrupted (e.g., due to communication failure)
 - it must be possible to detect and recover from interruptions (e.g., to undo already executed steps)

privacy (anonymity and untraceability)

- customers should be able to control how their personal data is used by the other parties
- sometimes, the best way to ensure that personal data will not be misused is to hide it
 - anonymity means that the customer hides her identity from the merchant
 - untraceability means that not even the bank can keep track of which transactions the customer is engaged in

Basic classification of e-payment systems

- pre-paid, pay-now, or pay-later
 - pre-paid: customer pays before the transaction (e.g., she buys electronic tokens, tickets, coins, ..)
 - pay-now: the customer's account is checked and debited at the same time when the transaction takes place
 - pay-later (credit-based): customer pays after the transaction

- on-line or off-line
 - on-line: a third party (the bank) is involved in the transaction (e.g., it checks solvency of the user, double spending of a coin, ...) in real-time
 - off-line: the bank is not involved in real-time in the transactions

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.

Before the introduction of computers, people manage payment systems directly and valuable information of business organisations was kept safely in paper records and files. However, in e-commerce environment, information related to payments is transmitted through computers and as such it can easily be accessible to any number of people including outsiders. Hence, the 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 organisational context. Therefore it is highly essential to protect this valuable information against loss, damage or disclosure. Though only the positive change brought about by the e-payment systems is highlighted, we cannot ignore the disadvantages of electronic payment systems. One must be aware of the privacy and security concerns raised by electronic payment systems. Security refers to the policies, procedures and technical measures and to prevent authorised access, alteration, theft or physical damage to information systems.

1.Information Security:

The basic objective of information security is the protection of interest of those involved in online business. Thus the main objectives of information security can be stated as follows.

1. availability Objective

Information should be available and usable whenever it is required.

2. Confidentiality Objective:

This objective states that information should be available to only those who have the right to access it.

3. Integrity Objectives:

As per this objective, information should be protected from unauthorised alteration and modification and misuse.

Solutions to security issues:

There are numerous threats that appear on the Internet or are spread through the Internet. Such threats include viruses, worms, Trojans, hackers, Denial of Service, sniffers and information theft. There are also internal threats from staff and backdoors. The software technologies that can be used to face such threats include the following.

The solution for meeting each of the goals above includes two essential components :

1. Digital certificates for Web servers, to provide authentication, privacy and data integrity through encryption.

2. A secure online payment management system, to allow e-commerce Web sites to securely and automatically accept, process, and manage payments online.

Along with these, a business firm can make use of technologies to build up a trusty infrastructure to take full advantage of this Internet.

A brief discussion on various methods generally used for managing the security issues given below.

A. Anti-Virus Programs

The first and most critical element of e-payment security system is antivirus software. If organisation does not have up-to-date antivirus software they are asking for trouble. 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 of 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 file itself. Good antivirus software will find viruses that have not yet infected your PC and eliminate the ones that have.

Antivirus software can only protect our computer from virus trying to infect it via e-mail, CD-Rom, floppy disk, Word documents or other types of computer files. Antivirus software alone will not keep our computer cent percent safe. It is also necessary to use other methods like firewall software.

As the organization's computer accesses the Internet then an anti-virus scanner should be installed. There are different types of antivirus software now in use. It should be configured to perform analysis and be able to scan zipped files as well as other types of files.

Anti-virus programs 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 anti-virus scanners are set to update them automatically. If any notification is received through such thing as radio or TV or the Internet, that there is a major problem with a virus or worm, then the anti-virus software can be updated manually at that time.

2. Firewalls

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. All data traffic in bound to our server solution flows to the firewall. There, data packets are inspected and evaluated against a security policy that we define. All data packets are compared to our security policy before being forwarded or rejected by the firewall.

There are certain benefits that result for the server such as the protection of vulnerable services and restricted access to any vulnerable machines. The firewall server is to act as a gateway. It hides the existence of any of the internal machines from any hackers on the Internet. All access to the Internet will to through it and this means the Internet traffic will be able to watched closely, so any misuse could be noticed quickly.

3. Secure Socket Layer (SSL)

SSL allows traffic to be scrambled (or encrypted). The standard SSL developed by Netscape provides a high level of protection. The US government views encryption technology as munitions, so the only version of SSL available worldwide is the relatively weak 40-bit version. However, this version can protect against any casual attempt to decpher card details, as it take over an hour to crack one message. Browsers that support this feature a dialogue ox, a padlock in the bottom task bar, or a blue key (like Netscape Navigator) to indicate that a secure session is in progress.

4. Secure Electronic Transaction (SET)

SET encrypts payment card 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.

5. Public Key Software Infrastructure (PKI)

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

6. Other Measures

For secure online transactions, the site that hosts the account should follow strict security policies. If the passwords are susceptible to being hacked, it results in a serious financial loss. Banks or financial institutes, which maintain customer's personal information, cannot afford to expose it to hackers. There is a potential risk of our personal and account details being stolen.

One of the most severe disadvantages of electronic payment systems is that of identify theft. The available security measures can prevent the sensitive information from being exposed. But it is important to use virus protection or firewalls for our computer. It is important to carry out money transactions over a secure server.

There is a great risk involves in the theft or the loss of the smart cards. In case the cards fall in unsafe hands, there is a danger of the expenditure of our entire bank balance. There are measures to inform the concerned authorities about the loss of the card. But, the time between losing the card and informing the authorities is critical. Unauthorized users may carry transactions in our name during this period of time.

Mostly, electronic cash is based on cryptographic systems. The transactions are encoded by means of numeric keys while the transaction details travel across the net. Though, electronic payments are resistant to forgery, these keys are vulnerable to attack.

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 to 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 goes 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 accidentally. User names, credit card numbers, and dollar amounts sent are all vulnerable to such alteration.

Types of Threats and sources of threats

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

1. Email attachments – opening an attachment could unleash a virus and they can propagate themselves even without a user double-clicking on them.
2. VPN tunnel vulnerabilities – a hacker who works his way into the VPN has free and easy access to the network
3. Blended attacks – Worms and viruses are becoming more complicated, and now a single one may be able to execute itself or even attack more than one platform.
4. Diversionary tactics – hackers may strike a set of servers in a target company and then when security administrators are busy securing that, they slip in and attack another part of the network.
5. Downloading Tactics - Workers frequently misuse their Internet access in the workplace, downloading games, movies and music and even porn. It opens the network up to attack and sucks up valuable bandwidth.
6. Supply chain partners Added to the Network – An administrator may grant access to the network for a partner company and then forget to close that access point when the job is over.
7. Renaming documents – An employee could save business critical information in a different file, give it a random, unrelated name and email the information to her home computer, a friend or even a corporate competitor.
8. Peer to peer applications – Here, there is implied trust between servers. That means if a user has access to one server, he automatically has access to another server if the servers share trust.
9. Music and Video Browsers – These are browsers that automatically will connect the user with related web sites – all without the user's permission.

Security tools

1. Encryption

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

2. Digital Signatures

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

A digital signature performs the similar function to a written signature. A recipient of data such as e-mail message can also verify the signed data and that the data was not modified after being signed. In order to digitally sign a document, a user 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 commonly 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 facilitate Electronic Governance, the Information Technology Bill [IT Bill] passed by Indian Parliament on May 17, 2000. The Information Technology Act [IT Act] came into effect on 17th October 2000.

Information Technology Act-2000

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

1. Electronic contracts will be legally valid
2. Legal recognition of digital signatures
3. Security procedure for electronic records and digital signature
Appointment of certifying authorities and controller of certifying authorities including recognition of foreign certifying authorities.
4. Various types of computer crimes defined and stringent penalties provided under the Act.
5. Establishment of Cyber Appellate Tribunal under the Act.
6. Act to apply for offences or contraventions committed outside India.
7. Power of police officers and other officers to enter into any public place and search and arrest without warrant
8. Constitution of Cyber Regulations Advisory committee who will advise 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 be 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 [UNCITRAL]

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

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

MAJOR LEGAL AND ETHICAL ISSUES IN ELECTRONIC COMMERCE

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

LEGALITY VS. ETHICS

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

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

PRIVACY ISSUES

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

HOW IS PRIVATE INFORMATION COLLECTED?

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

Most common methods are cookies and site registration

FIVE PRINCIPLES OF PRIVACY PROTECTION

Notice/Awareness

Notice of collection practices prior to collecting information

Choice/consent

Consumers to be made aware of options and give consent

Access/participation

Must be able to access and challenge information

Integrity/Security

Must be assured data is secure

Enforcement/Redress

PRINCIPLES OF SAFE HARBOR

Companies must tell consumers how and why personal data is collected and who it's shared with

Consumers must be able to request their data not be shared

Companies must provide notice and choice before data is given to third parties

Consumers must have access to data about them and have the ability to correct mistakes

Companies must take reasonable measures to protect data

Personal data must be relevant to its intended purpose

Procedures must be in place to settle complaints and resolve disputes

Government legislation or legal remedies

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Part-B

Section A

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

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

Section B

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

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

Section C

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

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

Model question paper 2012

Part-B

Section A

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

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

Section B

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

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

Section C

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

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