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TEXT BOOK:

Joseph P. T., E - Commerce – An Indian Perspective

REFERENCE:

Jaiswal S., E-Commerce

Mohammad Mahmoudi Maymand, E-Commerce

Murthy C.S.V., E-Commerce - Concepts, Models and Strategies

UNIT – I

E-Commerce

LEARNING OJECTIVES

After studying this lesson, you will be able to:

- Understand the concept of E-Commerce
- Know the Characteristics of E-Commerce
- Explain the functions of E-Commerce
- Define the scope of E-Commerce
- Recognize the benefits and limitations of e-commerce
- Identify E-Commerce opportunities and challenges

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1.1 Introduction

WE are living in e-century. The Internet and information and communications technologies (ICT) are central to economic growth and productivity. Internet-based technologies and networks can increase productivity, decrease costs and open new market opportunities.

Now-a-days, using the Internet and email to conduct business is not uncommon. However, lack of technical and management skills in Information and Communications Technology is a barrier. There are a wide variety of resources available to help you to improve

your e-commerce skills. Simply, decide what skills you need and identify the appropriate resources to help you to build those skills.

The skills that may be required range from basic abilities, like word processing and Internet navigation, to more complex capabilities such as designing and building websites and database management.

There are a range of resources to help you broaden your understanding of the e-commerce environment and develop your technical skills. These include online resources, books and magazines, seminars and training courses.

Keeping this in mind, a summary on the background of Electronic Commerce is being provided.

1.2 E-Commerce: Meaning

E-Commerce or Electronics Commerce is a methodology of modern business which addresses the need of business organizations, vendors and customers to reduce cost and improve the quality of goods and services while increasing the speed of delivery. E-commerce refers to paperless exchange of business information using following ways.

- Electronic Data Exchange (EDI)
- Electronic Mail (e-mail)
- Electronic Bulletin Boards
- Electronic Fund Transfer (EFT)
- Other Network-based technologies

The concept of e-commerce is all about using the internet to do business better and faster.

E-commerce is the process of buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network without using any paper document.

Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to "any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact."

Business transacted through the use of computers, telephones, fax machines, barcode readers, credit cards, automated teller machines (ATM) or other electronic appliances without

the exchange of paper-based documents. It includes procurement, order entry, transaction processing, payment authentication, inventory control, and customer support.

E-commerce is subdivided into three categories: business to business or B2B (Cisco), business to consumer or B2C (Amazon), and consumer to consumer or C2C (eBay) also called electronic commerce.

E-commerce the phrase is used to describe business that is conducted over the Internet using any of the applications that rely on the Internet, such as e-mail, instant messaging, shopping carts, Web services, UDDI, FTP, and EDI, among others.

A type of business model, or segment of a larger business model, that enables a firm or individual to conduct business over an electronic network, typically the internet. Electronic commerce operates in all four of the major market segments: business to business, business to consumer, consumer to consumer and consumer to business.

Ecommerce has allowed firms to establish a market presence, or to enhance an existing market position, by providing a cheaper and more efficient distribution chain for their products or services.

1.2.1 Examples of E-Commerce

- An individual purchases a book on the Internet.
- A government employee reserves a hotel room over the Internet.
- A business calls a toll free number and orders a computer using the seller's interactive telephone system.
- A business buys office supplies on-line or through an electronic auction.
- Retailer orders merchandise using an EDI network or a supplier's extranet.
- A manufacturing plant orders electronic components from another plant within the company using the company's intranet.
- An individual withdraws funds from an automatic teller machine (ATM).
- Accepting credit cards for commercial online sales
- Driving information through a company via its intranet
- Driving manufacturing and distribution through a value chain with partners on an extranet
- Selling to consumers on a pay-per-download basis, through a Web site, etc

1.3 E-Commerce Definitions

The definition of e-commerce includes business activities that are business-to-business (B2B), business-to-consumer (B2C), extended enterprise computing (also known as "newly emerging value chains"), d-commerce, and m-commerce.

Ecommerce is simply a part e-business, more specifically, the trading aspect of e-business. Although there are many definitions and explanations of e-commerce, the following definition provides a clear distinction. There are many definitions and understanding about E-Commerce. They are as follows:

1. According to the editor-in-chief of *International Journal of Electronic Commerce*, Vladimir Zwass, 'Electronic commerce is sharing business information, maintaining business relationships and conducting business transactions by means of telecommunications networks'.
2. Electronic Commerce is where business transactions take place via telecommunications networks, especially the Internet – E. Turban, J. Lee, D. King and H.M. Chung,
3. Electronic commerce is about doing business electronically – P. Timmers
4. Electronic commerce or e-commerce refers to a wide range of online business activities for products and services – Anita Rosen
5. It pertains to "any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact." – MK, Euro Info Correspondence Centre (Belgrade, Serbia),
6. E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network. – Thomas L. Mesenbourg
7. A more complete definition is: E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals. – Emmanuel Lallana, Rudy Quimbo, Zorayda Ruth Andam, ePrimer

   From your reading it should be apparent to you that electronic commerce is more than online shopping.

1.4 E-Commerce – Features

Electronic commerce, or e-Commerce, refers to the purchasing and selling of goods or services via electronic means, such as the Internet or mobile phone applications. It may also refer to the process of creating, marketing, servicing and paying for services and goods. Businesses, governments and the public can participate in e-Commerce transactions. The following discussion will elicit the unique features of e-commerce. The unique features of e-commerce technology include:

1.4.1 Ubiquity:

e-Commerce is ubiquitous, It is available just about everywhere and at all times by using internet and Wi-Fi hotspot such as airport, coffee cafe and hill station places.. Consumer can connect it to the Internet at any time, including at their homes, their offices, on their video game systems with an Internet connection and mobile phone devices. E-Commerce is ubiquitous technology which is available everywhere Moreover, individuals who have cell phones with data capabilities can access the Internet without a Wi-Fi connection.

1.4.2 Global reach:

The potential market size is roughly equal to the size of the online population of the world. E-Commerce Technology seamlessly stretches across traditional cultural and national boundaries and enables worldwide access to the client. E-Commerce website has ability to translate the multilingual websites as well as allow the access to visitors all over the world, purchase products and make business interactions.

1.4.3 Universal standards:

The technical standards of the Internet are shared by all of the nations in the world. The whole online tradition are growing and expanding their features in the world. To development any kind of business need Internet and communication application which make the business relationship more lovingly and attractive for secure business and successful business.

1.4.4 Richness:

Users can access and utilize text messages and visual and audio components to send and receive information. An individual may see information richness on a company's blog if a post contains a video related to a product and hyperlinks that allow him to look at or purchase the product and send information about the post via text message or email.

1.4.5 Interactivity:

E-commerce technologies allow two-way communication between the merchant and the consumer. As a result, e-Commerce technologies can adjust to each individual's experience. For example, while shopping online, an individual is able to view different angles of some items, add products into a virtual shopping cart, checkout by inputting his payment information and then submit the order.

1.4.6 Personalization:

Technologies within e-Commerce allow for the personalization and customization of marketing messages that groups or individuals receive. An example of personalization includes product recommendations based on a user's search history on a Web site that allows individuals to create an account.

1.4.7 Information density:

The use of e-Commerce reduces the cost to store, process and communicate information, At the same time, accuracy and timeliness increase; thus, making information accurate, inexpensive and plentiful. For example, the online shopping process allows a company to receive personal, shipping, billing and payment information from a customer all at once and sends the customer's information to the appropriate departments in a matter of seconds.

1.4.8 Social technology:

E-Commerce technology has tie up the social media networking application to provide the best source of content sharing technology and e-Marketing systems. You can share your content or data easily in just one click.

1.4.9 User-Generated Content:

Social networks use e-Commerce technologies to allow members, the general public, to share content with the worldwide community. Consumers with accounts can share personal and commercial information to promote a product or service. When a company has a professional social networking account, a member of the same social network has the option of associating himself with the company or a product by saying he likes or recommends it. When an individual updates his status on a social networking account, he may also mention a product or company by name, which creates word-of-mouth advertising.

Differences between Traditional Commerce and E-Commerce

Point of Difference	E-commerce	Traditional Commerce
Cost Effective	E-commerce is cost effective. The cost incurred on middlemen is eliminated as there is direct link between the business and the customers. . The total overhead cost required to run e-business is comparatively less. Running an e-business require only a head office. Overhead cost can be eliminated by hosting a website.	Cost has to be incurred for the role of middlemen to sell the company's products. The total overhead cost is more. Running a traditional business require a head office with several branches to cater to the needs of customers situated in different places.
Time	A lot of valuable time for both the consumers and business is saved. A product can be ordered and the transaction can be completed in few minutes through internet.	It takes a lot of time to complete a transaction.
Convenience	It provides convenience to both customers and business. It provides better connectivity for its prospective and potential customers as the website can be accessed virtually from anywhere, anytime through internet. It is not necessary to move away from their work place or home to locate and purchase a desired product.	It is not so convenient method as that of E-commerce. Customers have to move away from their home or work place to locate and purchase a desired product.
Accessibility	It is easy to expand the size of the market from regional to international level. By hosting a website, a business can penetrate into global market. It is quite easy to attract customers from global markets at a marginal cost.	It may not be easy to expand the size of the market from regional to national level. Business organizations have to incur a lot of expenses to enter international market.
Introduction of new product	It is easy to introduce a product on the website and get the immediate feedback of the customers. Based on the response, the products can be redefined and modified for a successful launch.	It takes a lot of time and money to introduce a new product and analyse the response of the customers. Initially, cost has to be incurred to carry out pilot surveys to understand the taste of the customers.
Profit	It helps the organization to enjoy greater profits by increasing sales, cutting cost and streamlining operating processes.	The cost incurred on the middlemen, overhead, inventory and limited sales pulls down the profit in traditional commerce.
Physical Inspection	It does not allow physical inspection of goods.	It is possible to physically inspect goods before the purchase.
Time	Round the clock service is available.	Business is open only for a limited time.

accessibility		
Product suitability	It not suitable for perishable goods and high value items such as jewellery and antiques. It is mostly suitable for purchasing tickets, books, music and software.	It is suitable for perishables and 'touch and feel' items.
Human resources	It requires technically qualified staff with an aptitude to update themselves in the ever changing world. It has difficulty in recruiting and retaining talented people.	It does not have such problems associated with human resources.
Customer interaction	The interaction between the business and the customer is screen-to-face.	The interaction between the business and the consumer is a face-to-face.
Process	Automated processing of business transactions helps to minimize the clerical errors.	There are chances of clerical errors to occur as there is manual processing of business transactions.
Business relationship	Business relationship is characterized by end-to-end.	Business relationship is vertical or linear.
Fraud	Lot of cyber frauds take place in e-commerce transaction. People generally fear to give credit card information. Lack of physical presence in markets and unclear legal issues give loopholes for frauds to take place in e-business transactions.	Fraud in traditional commerce is comparatively less as there is personal interaction between the buyer and the seller.
Information sharing	Little dependency on person to person information exchange. It provides a universal platform to support business activities across the globe.	Heavy dependency on information exchange from person to person. No uniform platform for information sharing as it depends heavily on personal communication.
Method of Communication	Communication can be done in asynchronous way. Electronics system automatically handles when to pass communication to required person or do the transactions.	Communication is done in synchronous way. Manual intervention is required for each communication or transaction.
Strategy	A uniform strategy can be easily established and maintain.	It is difficult to establish and maintain standard practices.

1.5 Functions of E-Commerce

The following are five functions you should be doing daily in your e-commerce business.

a) Search Engine Optimization (SEO)

- Generate unique relevant content. Google loves unique content that is related to what your site is all about. Ensure you are using good keywords you want to focus on.

- Every page should have an H1 tag around what is the focus of the page, such as a product name, category name, or static content title. Use H2 tags as well for other important page sections.
- Keywords in optimized page titles.
- Internal linking. Link keywords in your unique content to pages related to that keyword. This is huge!!!
- Friendly URLs with related phrases. E.g. When talking about Zobrist's eZcommerce solution, the URL looks like this: http://www.zobristinc.com/our_solutions/eZ_Commerce/

b) Selecting New Products

- Sell what the customer wants to buy, not what you want to sell! This is a common mistake, especially when merchandisers are given a great price to sell a particular product. If nobody wants to buy that product, it doesn't matter what price you set it at.
- Find out what customers want. What is your value proposition on products you sell? Capitalize on your niche!

c) Merchandising New Productions

- Pictures, pictures, pictures! It is very important to have high quality images of the products.
- Hero photos: if you have a big seller, feature it on a category page with a hero image of the product.
- Promote latest releases in your newsletters and feature them in categories or on your homepage.
- Market to customers who have purchased related items in the past.

d) Customer Service

- Make your customers happy.
- Delivery orders on time.
- Ensure order accuracy.
- Reship promptly if a package was failed to be delivered to the customer, if it came damaged, or if it was missing parts.
- Don't try to save every penny on an order. You may need to take a loss to make a customer happy in order to retain their loyalty to you, and therefore be very valuable for many orders to come.

e) Monitoring your KPIs / Analytics

- Monitor your analytics reports. View what items are selling and bubble them to the top of product listings so customers can find them easier. A great tool for this, if you are on IBM WebSphere Commerce, is our Smart Merchandiser product. With it, you can see analytic overlays on each product in each category to help you make smart merchandising decisions.
- Tackle cart abandonment. Remarket those products to the customers if you have their email addresses. Incentivize them to complete their checkout within X days.

1.6 Scope of E-Commerce

Today, online shopping is a reality in India. The market place is flooded with several e-commerce options for shoppers to choose from. In the recent past, the growth of e-commerce industry in India has been phenomenal as more shoppers have started discovering the benefits of using this platform. There is enough scope for online businesses in the future if they understand the Indian shopper's psyche and cater to their needs. Listed below are the reasons that guarantee the future prospect of E-commerce in India.

- Enhancing domain registrations
- Rising internet users
- Easy access to internet
- Awareness about internet even in rural areas
- Rising number of cyber cafes
- Growing need for E-commerce

a) Cash on delivery (COD)

Indian e-commerce industry has evolved over a period of time with innovations that have changed the rules of the game globally. COD is one such example. In a country where credit card penetration is much lower than other developed markets and where e-commerce companies are still working hard to build trust among shoppers, introducing cash on delivery has been one of the key factors for the success of the segment. At present, COD is the preferred payment mode for close to 55-60% of all online transactions in the fashion and lifestyle segment in India. Executing COD efficiently and painlessly for the customer is critical to the success of any e-commerce player in the country.

b) Delivering experiences

E-commerce needs to focus on customer experience to build trust and confidence. Customer experience encompasses every interaction of a customer from placing an order to interacting with customer service team, to the actual delivery experience. Providing a great delivery experience is one of the core aspects to delighting customers. This not only mean faster deliveries but also consistency and reliability. The more faith the customer has in your delivery service, the more likely he is to buy again. Besides, it builds a good brand image and word-of-mouth publicity.

c) Growing the base

India has more than 130 million online users at present, out of which as many as 10% are engaging in online transactions. The online user base is expected to cross 300 million in the next 2 – 3 years and a larger percentage of people are expected to transact online by the end of 2015. This large base will provide vast scope for e-commerce businesses to establish themselves in India.

d) Growing opportunities

The e-commerce industry is growing at a rapid pace and changing the dynamics of the retail industry. In the coming years, e-commerce is expected to contribute close to 8-10% of the total retail segment in India. This growth is bound to continue provided e-commerce companies focus on innovating, building strong technology infrastructure and delivering the best customer experience.

e) Online Travel Segment

The online travel segment has seen a CAGR of 55.5% from 2007-2012. The is due to rise of disposable income, surge in demand for domestic travel and the boom of the tourism industry. Domestic travel contributed to as much as 50% of the total market, followed by railways tickets, international air tickets, hotel bookings and bus tickets.

f) E-Tailing

E-tailing encompasses buying consumer items like apparels, electronic devices, home and kitchen appliances, jewellery, online. Competition is intense due to low entry barrier of this segment. However, Amazon.com, flipkart, snapdeal.com,jabong.com, and myntra.com are some of the major players. This segment is expected to grow further as people become more pressed for time. Also the choice that e-tailing sites offer to customers will drive demand for this

segment. However, there will be intense price based competition in this sector and consolidations are in the order.

g) Online Financial Services

The financial services segment includes applying for insurance, paying online bills, and premiums and online transactions for financial services. The costs of these insurance policies are lesser with premiums being 40%-60% cheaper. This is a win-win situation for both the insurance provider and the customers. Also the convenience provided by online portals has led to more customers choosing the online route for bill payment.

h) Classifieds

It is in a very promising stage and has lot of scope for growth. Online advertising is lot cheaper than conventional methods and unlike the latter, it is not constrained to a geographic location. The growth is mainly fuelled by services like online job (60% of the segment), online matrimony, B2C classifieds and B2B classifieds. Naukri.com, timesjob.com, monster.com are the major players in the job market while jeevansathi.com, shaadi.com are the major matrimonial sites.

i) Other online Services

These include sites offering online services like buying entertainment tickets, food and grocery.

1.7 Benefits and limitations of E-Commerce

1.7.1 Benefits of E-Commerce

Electronic commerce can increase sales and decrease costs. Advertising done well on the web can get even a small firm's promotional message out to potential consumers in every country in the world. A firm can use electronic commerce to reach narrow market segments that are geographically scattered. The web is particularly useful in creating virtual communities that become ideal target markets for specific types of products or services. A virtual community is a gathering of people who share a common interest, but instead of this gathering occurring in the physical world; it takes place on the internet.

Some key benefits of e-commerce are summarized below:

- By becoming e-commerce enabled, businesses now have access to people all around the world. In effect all e-commerce businesses have become virtual multinational corporations.

- The cost of creating, processing, distributing, storing and retrieving paper-based information has decreased.
- The pull-type processing allows for products and services to be customized to the customer's requirements.
- Enables reduced inventories and overheads by facilitating 'pull'-type supply chain management – this is based on collecting the customer order and then delivering through JIT (just-in-time) manufacturing.
- The Internet is much cheaper than value added networks (VANs) which were based on leasing telephone lines for the sole use of the organization and its authorized partners. It is also cheaper to send a fax or e-mail via the Internet than direct dialing.
- Software and music/video products can be downloaded or e-mailed directly to customers via the Internet in digital or electronic format.
- Businesses can be contacted by or contact customers or suppliers at any time.
- 24/7 access**:** Enables customers to shop or conduct other transactions 24 hours a day, all year round from almost any location.
- Customers not only have a whole range of products that they can choose from and customize, but also an international selection of suppliers.
- Customers can 'shop' around the world and conduct comparisons either directly by visiting different sites, or by visiting a single site where prices are aggregated from a number of providers and compared (for example www.moneyextra.co.uk for financial products and services).
- This can range from the immediate delivery of digitized 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.
- An environment of competition where substantial discounts can be found or value added, as different retailers view for customers. It also allows many individual customers to aggregate their orders together into a single order presented to wholesalers or manufacturers and obtain a more competitive price.
- Enables more flexible working practices, which enhances the quality of life for a whole host of people in society, enabling them to work from home. Not only is this more convenient and provides happier and less stressful working environments, it also

potentially reduces environmental pollution as fewer people have to travel to work regularly.

- ❖ Enables people in 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.
- ❖ Facilitates delivery of public services like health services available over the Internet (on-line consultation with doctors or nurses), filing taxes over the Internet through the Inland Revenue website.
- ❖ A business can reduce the costs of handling sales inquiries, providing price quotes, and determining product availability by using electronic commerce in its sales support and order-taking processes.
- ❖ Electronic commerce provides buyers with a wider range of choices than traditional commerce.
- ❖ Electronic commerce provides buyers with an easy way to customize the level of detail in the information they obtain about a prospective purchase.
- ❖ Electronic payments of tax refunds, public retirement, and welfare support cost less to issue and arrive securely and quickly when transmitted over the internet.
- ❖ Electronic payments can be easier to audit and monitor than payments made by cheque, providing protection against fraud and theft losses.
- ❖ Electronic commerce can also make products and services available in remote areas.

1.7.2 Limitations of E-Commerce

Most of the disadvantages of e-commerce stem from the newness and rapidly developing pace of the underlying technologies. Some of the key disadvantages of are given below:

- ➢ Return-on-investment is difficult to calculate.
- ➢ Many firms have had trouble recruiting and retaining employees with the technological, design, and business process skills needed to create an effective electronic commerce presence.
- ➢ Difficulty of integrating existing databases and transaction-processing software designed for traditional commerce into the software that enables electronic commerce.
- ➢ Many businesses face cultural and legal obstacles to conducting electronic commerce
- ➢ Lack of sufficient system security, reliability, standards and communication protocols.

- Rapidly evolving and changing technology, so there is always a feeling of trying to ‘catch up’ and not be left behind.
- Under pressure to innovate and develop business models to exploit the new opportunities which sometimes leads to strategies detrimental to the organization. The ease with which business models can be copied and emulated over the Internet increases that pressure and curtails longer-term competitive advantage.
- Facing increased competition from both national and international competitors often leads to price wars and subsequent unsustainable losses for the organization.
- Problems with compatibility of older and ‘newer’ technology. There are problems where older business systems cannot communicate with web-based and Internet infrastructures, leading to some organizations running almost two independent systems where data cannot be shared. This often leads to having to invest in new systems or an infrastructure, which bridges the different systems. In both cases this is both financially costly as well as disruptive to the efficient running of organisations.
- Computing equipment is needed for individuals to participate in the new ‘digital’ economy, which means an initial capital cost to customers.
- A basic technical knowledge is required of both computing equipment and navigation of the Internet and the World Wide Web.
- Cost of access to the Internet, whether dial-up or broadband tariffs.
- Cost of computing equipment. Not just the initial cost of buying equipment but making sure that the technology is updated regularly to be compatible with the changing requirement of the Internet, websites and applications.
- 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.
- 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 because they are interacting with faceless computers.

- As people become more used to interacting electronically there could be an erosion of personal and social skills which might eventually be detrimental to the world we live in where people are more comfortable interacting with a screen than face to face.
- 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 an underclass with potentially dangerous implications for social stability.
- Reliance on telecommunications infrastructure, power and IT skills, which in developing countries nullifies the benefits when power, advanced telecommunications infrastructures and IT skills are unavailable or scarce or underdeveloped.
- As new technology states how do you dispose of all the old computers, keyboards, monitors, speakers and other hardware or software?
- Facilitates Just-In-Time manufacturing. This could potentially cripple an economy in times 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.

1.8 The Internet and India

Before the appearance of VSNL's GIAS, Internet had been in India for many years in the form of ERNET. However, it was not possible for many people to get access to it, as it was meant for only the educational and research communities.

1.8.1 Educational Research Network (ERNET)

Internet in India was established as ERNET. It was a joint undertaking of the Department of Electronics (DOE) of the Government of India, and the United Nations Development Program (UNDP), which provides technical assistance to developing nations. ERNET is one of the most successful operations that UNDP has funded.

1.8.2 Gateway Internet Access Service (GIAS)

On August 15th 1995, Videsh Sanchar Nigam Limited (VSNL) -- the Indian international trunk telephone carrier company -- launched the Gateway Internet Access Service (GIAS). Subsequently, 6 nodes were established at Mumbai, Delhi, Madras, Calcutta, Bangalore and Pune. Each GIAS node is connected to Internet via high speed MCI circuits having a bandwidth of approximately 10 Mbps.

Users in remote areas of India can reach GIAS service via I-NET. The Department of Telecommunication (DOT) has a wide-spread network in India called I-NET, which has direct connectivity to each GIAS node.

1.8.3 Timeline Chart

The timeline chart showing the development of Internet in India is given below:

1986: ERNET project starts up; email exchange using UUCP protocol established between National Centre for Software Technology, Bombay, and IIT Bombay

1987: Email exchange between ERNET institutions in metros; TCP over X.25 established between the ERNET gateway at NCST and internet via CWI in Amsterdam

1988: Leased lines used to connect ERNET partner institutions to ERNET gateway in Bombay

1989: LWBBS (Live Wire BBS) and BBS CiX launch online services; VSNL commissions a Gateway Packet Switching System (GPSS) running X.25 protocol; ERNET acquires an analog leased line operating at 9600 bps to connect ERNET gateway at NCST, Bombay, to UUNET in the US

1990: TCP/IP implemented for communication between ERNET centres connected by leased lines

1991: LWBBS turns into a paid subscription service and expands to other cities such as Ahmedabad, Madras (Chennai), Pune, Calcutta (Kolkata), Baroda, Vapi

1992: Business India launches aXcess, a value-added service offering email as well as e-news, stock quotes

1994: ERNET establishes a hub in Bangalore to provide TCP/IP-level connectivity over satellite links to locations otherwise unreachable by dedicated circuits

1995: VSNL introduces public internet access in India via dialup services in 6 cities on August 15, 1995; India World portal launches on March 13

1996: Major newspapers such as The Times of India, The Hindu, The Indian Express *and* Hindustan Times set up websites; Rediff.com launched; India's first cyber cafe launched in Mumbai

1997: Tamil newspaper Dinamani sets up website; Hotmail creator Sabeer Bhatia sells Hotmail to Microsoft for $400 million; first online banking site launched by ICICI Bank; Naukri.com launched; IndusInd also launches website; Khel.com cricket site launched

1998: Private ISPs allowed to set up internet infrastructure; LWBBS's Pune node, JabberWocky operated by WMI becomes the first ISP licensee; Sify becomes India's first national ISP license holder; first major hacking case (teenagers hack data on BARC's servers); launch of NASSCOM to promote IT industry by efforts of Dewang Mehta; cyber cafes start mushrooming across Indian cities; annual India Internet World conference series starts in Pragati Maidan

1999: IndiaWorld sold to Sify for US$115 million (Rs 499 crore) triggering the dotcom boom in India; WebDunia, India's first and most successful Hindi portal, launched; large number of dotcoms appear, mostly modelled as e-marketplaces but have untested revenue models and big spends; Sify sets up hundreds of public internet kiosks under the brand name i-Way; New Telecom Policy 1999 launched by DoT; India ISPs allowed to set up satellite international gateways; India Info portal launched

2000: Parliament passes Information Technology Act 2000; foreign portals like Yahoo and MSN set up Indian sites; Bazee.com launched based on the eBay model; Indya.com launched with Rs 4.5 crore campaign blitz; birth of online journalism: Tehelka.com exposes cricket betting scandal; ITC launches e-Choupal initiative to take the internet to villages; Railtel Corporation of India launched; NSE launches online stock trading; cable internet starts replacing dialup connections; 2000: Rediff IPO on NASDAQ; Sulekha.com legal entity founded in Austin, Texas

2001: Subscription sites set up by thenewspapertoday.com and NaiDunia.com; Times of India group launches 8888 mobile service; India Today group launches 2424 mobile service; first cyber crime-related arrest (two arrested for hacking go2nextjob.com); Indian Railways launches online ticketing site (irctc.com) which soon becomes India's largest e-revenue earner; India's first cyber crime police station opens in Bangalore; Dotcom bubble bursts -- many sites close, some go into hibernation; C-DAC announced the launch of its Multilingual Advanced News Automation System: MANAS; GAIL India launched; Andhra Pradesh state government launches e-procurement portal and extends public internet kiosk facility to every mandal office

2002: Malayalam Varikha.com, the website of weekly Malayalam magazine, launches paid site; NPTEL (National Programme on Technology Enhanced Learning) initiative launched; India's first teleradiology company Teleradiology Solutions launched; Indian ISPs allowed to set up submarine international gateways; Wikipedia.org adds Assamese, Punjabi, Nepali, Oriya, Malayalam content

2003: Air Deccan launches India's first online air ticketing site; NIXI (National Internet Exchange of India) set up; WiFi (2.4GHz) deregulated by GoI; official representation from India's DoT and DIT at WSIS 2003 in Geneva; AirTel launches broadband internet access; Wikipedia.org adds Bhojpuri, Marathi, Kannada, Hindi, Kashmiri, Tamil, Telugu, Gujarati, Sanskrit, Sindhi content

2004: DoT declares its Broadband Policy; BSNL introduces broadband; eBay buys Bazee.com; Monster.com buys Jobsahead.com; NIXI takes over management of the .IN Registry; ITC e-Choupal demonstrates rural internet adoption; Google starts India office; Wikipedia.org adds Bengali, Urdu content; Sulekha starts Hindi operations; Ebay India CEO arrested for alleged sale of porn online, but later released -- the arrest is criticised by industry

2005: Social networking sites like Orkut make their presence felt; online registration of .IN domains begins; Indic language user interface appears on basic cell phones

2006: Facebook makes India debut; OneIndia.in portal launched; national E-Governance Plan launched; Naukri.com IPO in India

2007: Major media websites switch to tab-based design; Arzoo.com re-launched as a travel portal by Sabeer Bhatia; Twitter makes its India debut; Google News launches Hindi service

2008: India sets a world record by sending 10 satellites into orbit in a single launch; Apple iPhone debut in India; Internet Governance Forum (IGF) held in India; Google News launches in Tamil, Malayalam, Telugu

2009: GoI puts forth the draft policy on Indian language IDNs

2010: 3G spectrum auctioned by telecom players after two-year-long process; WiMax licenses auctioned; GoI announces National IPv6 Roadmap; TRAI releases National Broadband Plan; MakeMyTrip lists on NASDAQ at over US$1 billion; Facebook overtakes Orkut in India

2011: Mobile number portability launched; ICANN approves 7 Indian language Internationalised Domain Names (IDNs) for India; iPad enters India market after its Dell and Samsung rivals; Pearson Group takes controlling stake in e-education startup TutorVista; Indian government launches National Knowledge Network (NKN); India internet start-ups Komli Media, LetsBuy.com bag $21 million venture capital deals; India's 2011 census uses social media; IIT courses, lectures made available online

1.9 E-commerce opportunities and challenges for industries

E-Commerce is presently an essential ingredient of India's trade facilitation policy. Since 1991, after economic reforms explicitly took place in India, the need to facilitate international trade both through policy and procedure reforms has become the foundation stone of India's trade and fiscal policies. Resultantly, a technological revolution accompanied by the wide spread use of the Internet, web technologies and their applications took place. E-Commerce has changed and is still changing the way business is conducted around the world.

1.9.1 Opportunities:

There is a rising awareness among the businesses in India about the opportunities offered by e-commerce. E-commerce provides a new place for connecting with consumers and conducting transactions. Virtual stores operate round the clock.

a) Global Trade:

E-business is one of the major factors in the globalization of business. Other factors include decreases in trade barriers, globalization of capital markets. Indian e-business has grown at a compounded annual growth rate of 30% since FY09, and is expected to be $18 billion (around Rs 1,116,00 crore) opportunity by FY15.

b) Virtual Businesses:

Business firms now have the ability to become virtual E-Business. Virtual business uses electronic means to transact business as opposed to the traditional means of face to face transaction.

c) Lower search costs:

The Internet brings low search costs and high price lucidity. E-business has proved to be highly cost effective for business concerns as it cuts down the cost of marketing, processing, inventory management, customer care, etc.

d) Round the clock:

Customers can do transactions for the product or enquiry about any product/services provided by a company anytime, anywhere from any location.

e) Greater Economic Efficiency:

Greater economic efficiency (lower cost) and more rapid exchange (high speed, accelerated, or real-time interaction) are achieved with the help of electronic business.

The e-commerce market in India has grown by 34 percent in the last decade, was about USD 600 million in 2011-12 and is expected to touch USD 9 billion by 2016 and USD 70 billion by 2020. According to Forrester, the Indian e-commerce market is expected to grow at a CAGR of over 57 percent between 2012 and 2016, which is the fastest within Asia-Pacific region.

1.9.2 Challenges:

The growth of ecommerce volumes in India is attracting the attention of players around the world. Despite lower per-capita purchasing power, the population still makes India one of the most attractive emerging markets for ecommerce. But India is far from being a bed of roses. Here are the top 8 challenges that ecommerce businesses face in India.

a) Indian customers return much of the merchandise they purchase online.

Indian customers return much of the commodities they purchase online. E business in India has many first time buyers. This means that they have not yet made up their mind about what to expect from e-business websites. As a result, buyers sometimes fall prey to hard sell. But by the time the product is actually delivered, they regret and return the goods. Returns are expensive for e-business companies, as reverse logistics presents unique challenges. This becomes all the more complex in cross border e-business.

b) Cash on delivery is the preferred payment mode.

Cash on delivery is the preferred payment mode. Low credit card access and low trust in online transactions has led to cash on delivery being the preferred payment choice in India. Unlike electronic payments, manual cash collection is painstaking, risky, and expensive.

c) Payment gateways have a high failure rate.

Indian payment gateways have an unusually high failure rate by global standards. E-business companies using Indian payment gateways are losing out on business, as several customers do not attempt making payment again after a transaction fails.

d) Internet penetration is low.

Internet penetration is low. Internet penetration in India is still a small fraction of what is there in a number of western countries. The quality of connectivity is poor in several regions. But both these problems are on their last legs. The day is not far when connectivity issues would not feature in a list of challenges to e-business in India.

e) Feature phones still rule the roost.

Though the total number of mobile phone users in India is very high, a significant majority still use feature phones, and not smart phones. As a result this consumer group is unable to make e-business purchases on the move. Though India is still a couple of years away from the scales tipping in favour of smart phones, the rapid downward spiral in the price of entry-level smart phones is an encouraging indication.

f) Postal addresses are not standardized.

If an online order is placed in India, it is quite likely get a call from the logistics company to ask about exact location. Clearly address is not enough. This is because there is little standardization in the way postal addresses are written.

g) Logistics is a problem in thousands of Indian towns.

Given the large size of the country, there are thousands of towns that are not easily accessible. The problem with logistics is compounded by the fact that cash on delivery is the preferred payment option in India. International logistics providers, private Indian companies, and the government-owned postal services are making a valiant effort to solve the logistics problem.

h) Overfunded competitors are driving up cost of customer acquisition.

The long-term prospects for ecommerce companies are so exciting that some investors are willing to spend irrationally high amounts of money to acquire market share today. Naturally the Indian consumer is spoiled for choice.

1.10 Future Scope and Growth

The growth of e commerce will be on two accounts: One is due to the changes in the macro-economic parameters like disposable income, internet penetration, inflow of investments, and the other due to segment specific factors.

a) Macro-economic factors

i) Personal Disposable Income will continue to rise

According to the International Monetary Fund (IMF), personal disposable income will rise; it signals that the purchasing power of the people and their standard of living has increased. As a result, demand for goods and services are expected to rise. With more disposable income, the benefits of time saving offered by e-commerce will lead to growth in the sector.

ii) Number of active Internet users in India is poised to rise

Internet penetration has increased by a CAGR of 30% from 2007. There has been an increase in internet user base and such trend is expected to continue. This will led to more advertisement on the digital media. As advertisements increase, the trial rate and the repeat rate for online retailing is likely to increase. This will trigger growth in both the travel and non travel segment due to more customer acquisition.

iii) Demand for debit and credit cards will see a rise

The demand for debit and credit cards has also seen a steady rise over the last few years. Most of the banks now provide online banking and debit card facility with every new account. With the financial inclusion drive by the RBI, the number of bank accounts (and hence the number of debit cards) will definitely see a rise. This coupled with rising disposable income will invariably lead to more online transactions.

b) Segment Specific factors

In the online travel segment, growth of the tourism industry and demand of domestic travel will have positive externalities on the e-commerce industry. With travel websites providing additional features like hotel booking and package tours, the convenience factor offered byy these websites will lead to growth. Additionally, internet gives users the a choice where they can evaluate an offer, compare the prices and decide on the one that suit their demand. In the online retail space, absence of showrooms and high cost of transportation prevents those in tier 2 cities to access global brands thus increasing demand for online shopping.

1.11 Summary

There is no one commonly agreed definition of E-Commerce. E-commerce has an impact on three major stakeholders, namely society, organizations and customers. There are a number of advantages, which include cost savings, increased efficiency, customization and global marketplaces. There are also limitations arising from E-Commerce which apply to each of the stakeholders. These include information overload, reliability and security issues, cost of access, social divisions and difficulties in policing the Internet.

In order to aid general understanding of E-Commerce a number of frameworks have been introduced to explore it from different perspectives. These frameworks help identify the elements of E-Commerce and how businesses can better understand E-Commerce and its practical applicability.

1.12 Key Terms

1. **E-Commerce:** Electronic Commerce is where business transactions take place via telecommunications networks, especially the Internet
2. **E-Business:** E-business is the transformation of key business processes through the use of Internet technologies.
3. **Internet**: It is a worldwide system of computer network through which the users at any
4. **Educational Research Network (ERNET):** Internet in India was established as ERNET. It was a joint undertaking of the Department of Electronics (DOE) of the Government of India, and the United Nations Development Program (UNDP)

5. **Gateway Internet Access Service (GIAS):** On August 15th 1995, Videsh Sanchar Nigam Limited (VSNL) -- the Indian international trunk telephone carrier company -- launched the Gateway Internet Access Service (GIAS).
6. **E-tailing**: E-tailing encompasses buying consumer items like apparels, electronic devices, home and kitchen appliances, jewellery, online. Amazon.com, flipkart, snapdeal.com,jabong.com, and myntra.com are some of the major players..

1.13 Self Evaluation Questions

1. Define the term E-Commerce.
2. What are the elements of E-Commerce?
3. What is Internet?
4. What is EDI?
5. What is E-Tailing?
6. Sketch out the historical development of E-Commerce.
7. State the impact of E-Commerce on business world.
8. What are the advantages of E-Commerce?
9. Bring out the disadvantages of E-Commerce.
10. Discuss the opportunities and challenges of E-Commerce in India.

UNIT – II

Business Models for E-commerce

LEARNING OBJECTIVES

After studying this unit, you will be able to:

- Know the meaning of Portal
- Appreciate the birth of portal
- Understand the concept of E-Business Model
- Classify different types of E-Business Models
- Explain the features of various E-Business Models

CONTENTS

2.1 Introduction

When it comes to starting an online business, you have a lot of choices to make. The biggest of the choices may be the most important as they will ultimately define your business model and much of the future of your business. Creating an e-commerce solution mainly involves creating and deploying an e-commerce site. The first step in the development of an e-commerce site is to identify the e-commerce model. Depending on the parties involved in the transaction, e-commerce can vary greatly in terms of how they provide value to and earn income from consumers. The following discussion would provide a bird's eye view about various E-Business Models in vogue.

2.2 Meaning and Definition of Portal

Portal is a doorway, entrance, or gate, especially one that is large and imposing. It is a Website considered as an entry point to other websites by providing access to a search engine.

Definition:

1. A site on the World Wide Web (WWW) that serves as a gateway or port of entry to the Internet is called Portal. It includes hyperlinks to news, weather reports, stock market quotes, entertainment, chat rooms, and so on.
2. A portal is a kind of Web site. The term originated with large, well-known Internet search engine sites that expanded their features to include email, news, stock quotes, and an array of other functionality.
3. **Portal** is a term, generally synonymous with *gateway*, for a World Wide Web site that is a major starting site for users when they get connected to the Web. There are general portals and specialized or niche portals.

   Examples of **general portals**: Yahoo, Excite, Netscape, Lycos, CNET, Microsoft Network, and America Online's AOL.com.

   Examples of **niche portals**: Garden.com (for gardeners), Fool.com (for investors), and SearchNetworking.com (for network administrators).
4. A **web portal** is one specially designed Web page that brings information together from diverse sources in a uniform way. Usually, each information source gets its dedicated area on the page for displaying information (a portlet); often, the user can configure which ones to display.
5. The term **portal space** is used to mean the total number of major sites competing to be one of the portals.

   Typical services offered by portal sites include a directory of Web sites, a facility to search for other sites, news, weather information, e-mail, stock quotes, phone and map information, information from databases and even entertainment content and sometimes a community forum.

   The features available may be restricted by whether access is by an authorized and authenticated user (employee, member).

   Examples of early public web portals were

   AOL, Excite, Netvibes, iGoogle, MSN, Naver, Lycos, Indiatimes, Rediff, and Yahoo!.

2.3 Birth or Portal

Web portal was a web IT buzzword in the late 1990s. After the proliferation of web browsers in the late 1990s many companies tried to build or acquire a portal to attempt to obtain a share of an Internet market. The content and branding of a portal could change as internet companies merged or were acquired. For Example:

- Netscape became a part of America Online
- Walt Disney Company launched Go.com
- IBM and others launched Prodigy
- Excite and @Home became a part of AT&T Corporation during 1990s

The interest in portals saw some *old media* companies racing to outbid each other for Internet properties but died down with the dot-com bust in 2000 and 2001. Disney pulled the plug on Go.com, Excite went bankrupt, and its remains were sold to iWon.com. Some portal sites such as Yahoo! and some others first remain active and portals feature widely outside the English-speaking web (Chinese, Japanese, Indian and Russian. Portal metaphors are widely used by public library sites for borrowers using a login as users and by university intranets for students and for faculty. Vertical markets remain for ISV's offering management and executive intranet "dashboards" for corporations and government agencies in areas such as GRC and risk management.

2.4 Classification

Web portals are sometimes classified as *horizontal* or *vertical.*

2.4.1 A **horizontal portal** is used as a platform to several companies in the same economic sector or to the same type of manufacturers or distributors.

2.4.2 A **vertical portal** (also known as a "vortal") is a specialized entry point to a specific market or industry niche, subject area, or interest. Some vertical portals are known as "vertical information portals" (VIPs)

VIPs provide news, editorial content, digital publications, and e-commerce capabilities. In contrast to traditional vertical portals, VIPs also provide dynamic multimedia applications including social networking, video posting, and blogging.

2.4.3 Personal Portal: A personal portal is a web page at a web site on the World Wide Web or a local HTML home page including JavaScript and perhaps running in a modified web browser. It provides personalized capabilities to its visitors or its local user, providing a pathway to other

content. It may be designed to use distributed applications, different numbers and types of middleware and hardware to provide services from a number of different sources and may run on a non-standard local web server. Personal portals can be related to any specific topic such as providing friend information on a social network or providing links to outside content that may help others beyond your reach of services. Example:

home.psafe.com – A personal portal based on adaptive neural network technology provides customizable content according to each user's navigation, and provide full security against viruses, malware, phishing and bank fraud. The portal is developed by Brazilian online security company PSafe.

2.4.4 Business Portal: Business portals can be designed for sharing and collaboration in workplaces. A further business-driven requirement of portals is that the content be presented on multiple platforms such as personal computers, personal digital assistants (PDAs), and cell phones/mobile phones. Information, news, and updates are examples.

2.4.5 Government Web Portal: At the end of the dot-com boom in the 1990s, many governments had already committed to creating portal sites for their citizens. These included primary portals to the governments as well as portals developed for specific audiences. Examples:

- australia.gov.au for Australia.
- USA.gov for the United States (in English) & GobiernoUSA.gov (in Spanish).
- www.gov.lk for Sri Lanka.
- Disability.gov for citizens with disabilities in the United States.
- Europa (web portal) links to all EU agencies and institutions in addition to press releases and audio visual content from press conferences.
- gov.uk for citizens & businesslink.gov.uk for businesses in the United Kingdom.
- Health-EU portal gathers all relevant health topics from across Europe.
- india.gov.in for India.
- National Resource Directory links to resources for United States Service Members, Veterans and their families.
- govt.nz for New Zealand.
- Saudi.gov.sa for Saudi Arabia.

2.4.6 Cultural portal: Cultural portal aggregate digitised cultural collections of galleries, libraries, archives and museums. It provides a point of access to invisible web cultural content that may not be indexed by standard search engines. Digitised collections can include books, artworks, photography, journals, newspapers, music, sound recordings, film, maps, diaries and letters, and archived websites as well as the descriptive metadata associated with each type of cultural work. These portals are usually based around a specific national or regional groupings of institutions. Examples of cultural portals:

- DigitalNZ – A cultural portal led by the National Library of New Zealand focused on New Zealand digital content.
- Europeana – A cultural portal for the European Union based in the National Library of the Netherlands and overseen by the Europeana Foundation.
- Trove – A cultural portal led by the National Library of Australia focused on Australian content.
- In development - Digital Public Library of America

2.4.7 Corporate web portals: A Corporate Portal is basically a secured website used by employees, manufacturers, alumni and even customers. The portal is the perfect starting point for everyday tasks that usually would consist of using many different types and sources of information and tools. By gathering all necessary information and tools in one environment, users save huge amounts of time. Companies not only save time through their users, IT management costs and the TCO (total cost of ownership) can be much lower. Corporate Portals also offer customers & employees self-service opportunities.

2.4.8 Stock portal: It is also known as stock-share portal, stock market portal or stock exchange portal. It is Web-based applications that facilitates the process of informing the share-holders with substantial online data such as the latest price, ask/bids, the latest News, reports and announcements. Some stock portals use online gateways through a central depository system (CDS) for the visitors to buy or sell their shares or manage their portfolio.

2.4.9 Search portals: Search portals aggregate results from several search engines into one page. You can find search portals specialized in a product, for example property search portals like Nestoria or Nuroa.

2.4.10 Tender portals: A tender portal is a gateway for government suppliers to bid on providing goods and services. Tender portals allow users to search, modify, submit, review and archive data in order to provide a complete online tendering process.

Using online tendering, bidders can do any of the following:

- Receive notification of the tenders.
- Receive tender documents online.
- Fill out the forms online.
- Submit proposals and documents.
- Submit bids online.

2.4.11 Domain-specific portals: A number of portals have come about which are specific to the particular domain, offering access to related companies and services; a prime example of this trend would be the growth in property portals that give access to services such as estate agents, removal firm, and solicitors that offer conveyancing. Along the same lines, industry-specific news and information portals have appeared, such as the clinical trials-specific portal.

2.5 Meaning and Features of Business model

2.5.1 Meaning of Business Model

Business model is the most discussed and least understood aspect of the web. There is so much talk about how the web changes traditional business models. But there is little clear-cut evidence of exactly what this means.

Basically, a business model is the method of doing business by which a company can sustain itself -- that is, generate revenue. The business model spells-out how a company makes money by specifying where it is positioned in the value chain.

Some models are quite simple. A company produces a good or service and sells it to customers. If all goes well, the revenues from sales exceed the cost of operation and the company realizes a profit.

Internet commerce will give rise to new kinds of business models. But the web is also likely to reinvent tried-and-true models. Business models have been defined and categorized in many different ways. When organizations go online, they have to decide which e-business models best suit their goals.

A business model is defined as the organization of product, service and information flows, and the source of revenues and benefits for suppliers and customers. The concept of e-business model is the same but used in the online presence.

The e-Business model describes how a company functions; how it provides a product or service, how it generates revenue, and how it will create and adapt to new markets and technologies. It has four traditional components. These are the e-business concept, value proposition, sources of revenue, and the required activities, resources, and capabilities. In a successful business, all of its business model components work together in a cooperative and supportive fashion.

2.5.2 Features of Business model

i. E-Business Concept

The *e-business concept* describes the rationale of the business, its goals and vision, and products or offerings from which it will earn revenue. A successful concept is based on a market analysis that identifies customers likely to purchase the product and how much they are willing to pay for it.

ii. Value Proposition

The *value proposition* describes the value that the company will provide to its customers and, sometimes, to others as well. With a value proposition the company attempts to offer better value than competitors so that the buyer will benefit most with this product.

A value proposition may include one or more of the following points:

- Reduced price
- Improved service or convenience such as the "1 click" checkout
- Speed of delivery and assistance
- Products that lead to increased efficiency and productivity
- Access to a large and available inventory that presents options for the buyer
- Providing value in an e-business uses the same approach as providing value in any business, although it may require different capabilities. But common to both are the customers who seek out value in a business transaction. The value proposition helps focus the business on the well-being of the customer, where it remains in successful companies.
- Value Delivery through Integration Of Activities

iii. Sources of Revenue

Depending on the business model, several revenue sources may be available to an e-business. Many online businesses will have a three or four of these sources. A mix of revenue sources is often referred to as a *revenue model* but may be mistakenly called a business model. Some of these sources of revenue are:

- ❖ Advertising
- ❖ Affiliation
- ❖ Agent commissions
- ❖ Licensing
- ❖ Sales commissions
- ❖ Sales profits
- ❖ Sponsorship
- ❖ Subscription
- ❖ Syndication
- ❖ Use Fees

For large public-private or government projects revenue sources might also include:

- ✓ Bonds, usually for large capital expenditures
- ✓ Taxes, primarily income, property and sales taxes
- ✓ Use fees and tolls

With small fast-growing companies such as e-Business startups, investors often track expected revenues and revenue growth and may make changes to increase revenue. However, after the **Dot-Com** boom ended, more traditional measures such as cash flow and earnings have came back into favor as means of evaluation.

iv. Activities, Resources and Capabilities

The activities, resources and capabilities of a business are sometimes known as its requirements. In order to perform the activities required to carry out the **mission** of the business, certain resources are needed; for example, employees with certain skills, or capabilities, are needed to perform activities correctly and efficiently. Also, inventions, processes and other **intellectual property** may add to the individual knowledge of an employee to develop a competence in the performance of the required activities.

a. Activities

Activities are specific business processes or groups of processes such as design, production and sales that implement the business concept. The operational business model identifies the costs and outputs of each activity. Activities drive the need for resources.

b. Resources

In order to perform activities an organization requires human, tangible, intangible and supporting resources.

Human resources, in particular the skills and knowledge of employees are important, as are the programs (e.g. incentives, training) and institutions that support them.

Tangible, or physical and financial, resources include facilities, equipment, and cash reserves.

Intangible resources include intellectual property, business processes that can be patented, brands, customer profiles and personalization data in databases, and customized software.

Supporting resources include organizational structure, information systems or communications processes that may have little value as stand-alone resources.

c. Capacity

The total resources of the organization represent its *capacity*. When resources are underutilized, the company has resources that aren't used, or *idle capacity*. Idle capacity in manufacturing tends to be measured in terms of additional output that could be produced. In service organizations the measure for idle capacity is usually a number of employees. Resource capacity can also be measured in job-hours, machine-hours, sales per employee, or square feet. Often these are compared with industry standards to assess the efficiency of the organization.

Capacity also represents a constraint to growth. Demand for product or services may exceed capacity and managers may take a variety of steps to temporarily resolve the problem: overtime for existing employees, additional shifts to increase the utilization of equipment, contracting to outside entities, even competitors. For example, a software company may outsource code writing, which is standard fare - almost a routine activity, in order to increase its design capacity.

2.6 E-Business Models

An e-business model is simply the approach a company takes to become a profitable business on the Internet. There are many buzzwords that define aspects of electronic business, and there are subgroups as well, such as content providers, auction sites and pure-play Internet retailers in the business-to-consumer space.

E-Commerce or Electronics Commerce business models can generally be categorized into the following types.

Business - to - Business (B2B)

Business - to - Consumer (B2C)

Consumer - to - Consumer (C2C)

Consumer - to - Business (C2B)

Business - to - Government (B2G)

Government - to - Business (G2B)

Government - to - Citizen (G2C)

2.6.1 Business - to - Business (B2B)

A type of commerce transaction that exists between businesses, such as those involving a manufacturer and wholesaler, or a wholesaler and a retailer is known as Business-to-Business (B2B). It refers to business that is conducted between companies, rather than between a company and individual consumers. This is in contrast to business to consumer (B2C) and business to government (B2G). Website following B2B business model sells its product to an intermediate buyer who then sells the product to the final customer. For example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to final customer who comes to buy the product at wholesaler's retail outlet.

B2B implies that seller as well as buyer is business entity. B2B covers large number of applications which enables business to form relationships with their distributors, resellers, suppliers etc.

IBM, Hewlett Packard (HP), CISCO, Dell are the examples of B2B. Chemconnect.com and chemdex.com are the examples of B2B that brings two firms together on the virtual market. Following are the leading items in B2B e-Commerce.

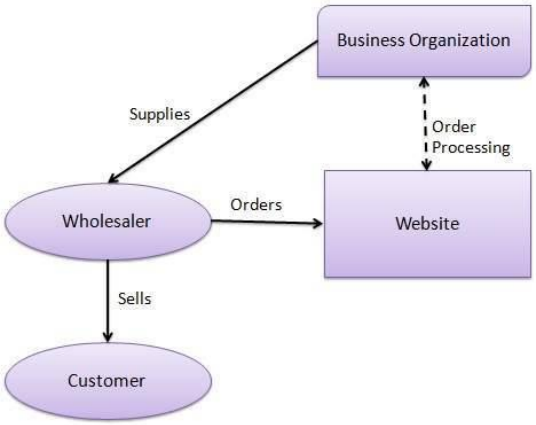
- Electronics
- Shipping and Warehousing

- Motor Vehicles
- Petrochemicals
- Paper
- Office products
- Food
- Agriculture

B2B applications can be witnessed in the following areas:

- ❖ Supplier management
- ❖ Inventory management
- ❖ Distribution management
- ❖ Channel management
- ❖ Payment management

Diagrammatic Representation of B2B Model



Models in B2B:

The B2B model can be supplier centric, buyer centric or intermediary centric models

Supplier Centric Model

In this model, a supplier sets up the electronic commerce market place. Various customers interact with the supplier at its electronic market place. The supplier is generally a dominant supplier. He may

provide customized solutions and pricing to fit the needs of buyers. Intel and Cisco have been adopting the supplier centric Model.

Buyer centric Model

In this model, big business organisations with high volume purchase capacity create an electronic commerce market place. The online electronic commerce marketplace is used by the buyer for placing requests for quotations and carrying out the entire purchase process. The US government and the General Electric Trading Process Network are examples of buyer-centric model.

Intermediary – centric model

In this model, a third party sets up the electronic commerce market place. The third party attracts both buyer and seller to interact with each other at its market place. The buyer places their request interacts with each other and reaches a final decision in purchase or sale of goods.

Advantages of B2B

Selling products to businesses using an online channel is much more complex than selling to private customers. In addition to the way that you approach the customer, which is different than in the B2C sector, there is a whole range of other differences that are essential to understand and that can be advantageous. The following are the advantages of B2B model.

1. Instant purchases: Online business allows for instant purchases. Now, companies can do almost everything over the internet. They can get in contact with the company they are seeking to transact with, make a first time transaction, and then set up a system for future transactions. This allows for frequent purchases. Under frequent purchases, prices usually drop. Therefore, there is saving in time and money.

2. Increased revenue: 24/7 online ordering will increase companies' revenue. Many different time zones exist in the world and potential clients might not have the same business hours as you. By allowing for companies to make transactions all the time, the time zone becomes irrelevant. For example: If it is 10 am in your clients' time zone and 2 am in your time zone, your client can still make purchases. By offering products at all hours of the day, revenue will increase for the company.

3. Expands company's presence: If your company has joined the online community, than it is expanding its presence and increasing its brand awareness. Nowadays, you can find just about anything over the internet. Why not allow for people to find your company too?

4. Closer business relationships: Doing business with other companies online will create closer business relationships. This will result in more transactions. This frequent buying builds a stronger relationship. Although this does not require face to face interaction, it does allow for businesses to get more familiar with each other.

The Disadvantages of a B2B

Companies that embrace a B2B, model, stand to capture significant profit through the sales of high-cost products or sheer bulk orders. B2B practices diverge in several and significant ways from standard business-to-consumer practices. Although some differences entail simple changes in perspective, others create disadvantages for companies seeking to sell to other businesses.

1. Limited Market

Businesses selling to other businesses face a much smaller buying group than businesses selling to consumers. The total number of prospective buyers may be in thousands, rather than the potential millions of customers for consumer products. These limited numbers make every lead and every existing customer more valuable and the loss of a single, large customer can devastate the bottom line. For example, if you supply parts to businesses in mature markets, where only a handful of competitors normally operate, your business might not survive if one of your buyers closes shop.

2. Long Purchase Decision Time

The majority of consumer purchase decisions involve one or perhaps two decision makers and the total time for a purchase decision tends to run on the short side. The B2B sales cycle involves a complicated set of factors, involving multiple stakeholders and decision-makers, with total decision times that can stretch out for months. B2B sellers cannot depend on a fast turnaround with new clients for an influx of working capital and must maintain the financial solvency to operate with long gaps between sales.

3. Inverted Power Structure

In B2B, buyers wield more power than sellers. A B2B buyer can, also within limits, demand certain customizations, impose exacting specifications and drive a hard line with pricing because the seller depends much more heavily on retaining its customers. This requires B2B sellers to retain a level of flexibility in both product development and production.

4. Sales Process

The typical sale process in B2B demands considerable face time, often multiple meetings, and gets driven by quantifiable factors, rather than the qualitative and emotional factors. The sales process often depends on the salesperson's ability to demonstrate what the product does or allows modifications that solve the very specific problem the buyer faces, and can deliver a solid return on investment.

2.6.2 Business - to - Consumer (B2C)

As the name suggests, it is the model involving business and consumers over the internet. B2C means selling directly to the end consumer or selling to an individual rather than a company. Website following B2C business model sells its product directly to a customer. A customer can view products shown on the website of business organization. The customer can choose a product and order the same. Website will send a notification to the business organization via email and organization will dispatch the product/goods to the customer. B2C is also known as internet retailing or E-trailing.

- The B2C model includes electronic shopping, information searching (e.g. railway timetables) but also interactive games delivered over the Internet.
- Popular items sold using B2C model are airline tickets, books, computers, videotapes, music CDs, toys, music, health and beauty products, jewellery etc..

Following are the key features of a B2C Model

- Heavy advertising required to attract large number of customers.
- High investment in terms of hardware/software.
- Support or good customer care service

Consumer Shopping Procedure

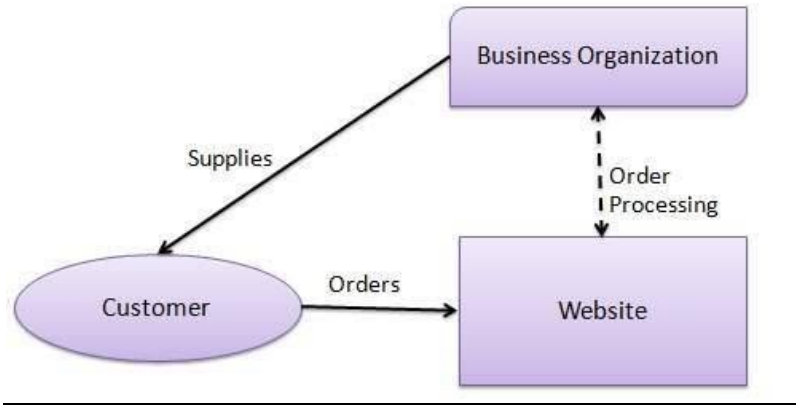
Following are the steps used in B2C e-commerce −

A consumer

- Determines the requirement.
- Searches available items on the website meeting the requirement.
- Compares similar items for price, delivery date or any other terms.
- Gives the order.
- Pays the bill.
- Receives the delivered item and review/inspect them.

- Consults the vendor to get after service support or returns the product if not satisfied with the delivered product.

Diagrammatic representation of B2C Model



Advantages of E-Commerce for B2C Businesses

Benefits of B2C e-commerce can be considered either from the viewpoint of the consumer or from that of the business.

From the consumer side, benefits include:

1. Access to goods and services from home or other remote locations.
2. The possibility of lower cost of goods and services.
3. Access to a greater variety of goods and services on offer.
4. Consumers can shop at any time of day, from the privacy of their own home. The internet has been called “the mall that never sleeps.”
5. So many choices – Consumers can shop for basically any item they can think of! Airline tickets, groceries, clothing, and even medicine!
6. Hassle free – Consumers can shop online without dealing with annoying sales people, fighting the congestion of shopping malls, and driving 10 different places to find one thing.

From the business side, benefits include:

1. Lower transaction costs associated with sales.
2. Access to global markets and hence to more potential customers.
3. Can reach worldwide market with unlimited volume of customers.
4. Can display information, pictures, and prices of products or services without spending a fortune on colourful advertisements.
5. In some cases, makes order processing an easier task than before.
6. Can operate on decreased, little, or even no overhead

Disadvantage of E-Commerce for B2C Businesses

1. The competition is so fast for the web. There can literally be thousands of places a customer can go and purchase the same product.
2. Technology problem can cause problems to operate the site properly, resulting in losing customers and sales.
3. Catalogue Inflexibility: The catalogue needs to regenerate every time when there is some new information or items to add in.
4. Limited Market Place: Normally, customer will be from locally and limited to certain area.
5. High Sales Cycle: Usually, a lot of phone calls and mailings are needed.
6. Required Higher Cost of Doing Business: Cost regarding inventory, employees, purchasing costs, and order-processing costs associated with faxing, phone calls, and data entry, and even physical stores increase transaction costs.
7. Inefficient Business Administration: Store inventory levels, shipping and receiving logs, and other business administration tasks might need to be categorized and updated manually in and done only when have time. This cause the information might not the latest or updated.
8. Need to employ number of staff: Need staffs that give customer service and sales support service.

Disadvantages for the consumer

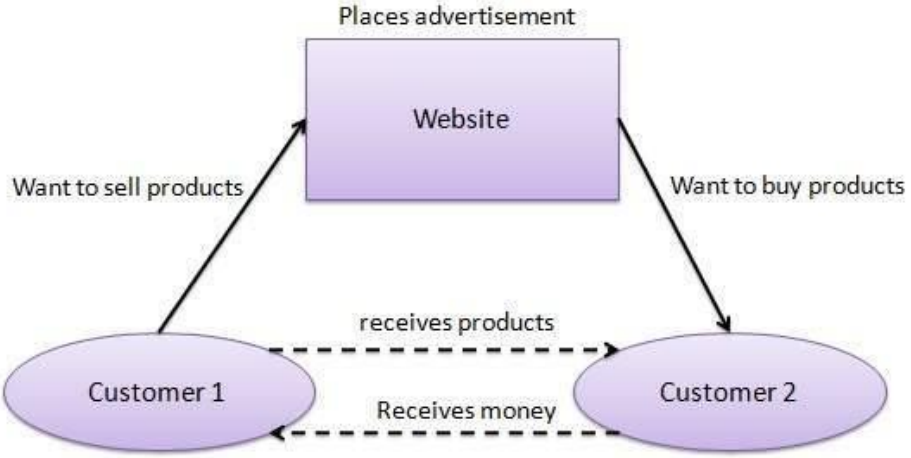
1. Security issue: probably the number one reason why people don't purchase online. Credit card information is very sensitive and must be handled by someone the customer can trust. Scams, frauds and rip-off are not uncommon on the web.
2. Customer services: consumer are not always satisfied with their purchases and when buying online.

2.6.3 Consumer - to - Consumer (C2C)

Customer to Customer (C2C), sometimes known as Consumer to Consumer, E-Commerce involves electronically-facilitated transactions between individuals, often through a third party. One common example is online auctions, such as Ebay, where an individual can list an item for sale and other individuals can bid to purchase it. Auction sites normally charge commission to the sellers using them. They act purely as intermediaries who match buyers with sellers and they have little control over the quality of the products being offered, although they do try to prevent the sale of illegal goods, such as pirate CDs or DVDs.

Website following C2C business model helps consumer to sell their assets like residential property, cars, motorcycles etc. or rent a room by publishing their information on the website. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.

Another popular area for customer to customer transactions is online classified advertising sites, such as Craigslist and Gumtree. Major online retailers like Amazon also allow individuals to sell products via their sites.



C2C is expected to increase in the future because it minimises the costs of using third parties. However, it does suffer from some problems, such as lack of quality control or payment guarantees and there can sometimes be difficulties in making credit-card payments.

- ❖ The same customer can act as both buyer as well as seller
- ❖ The online market place will allow buyer to browse products by using different criteria such as; best seller, most popular product, from your city and many more
- ❖ Different sellers can bid on the products with list item listed by the buyer, what they are looking for so that the buyer can get different best prices and offers from sellers
- ❖ The social media linking functionalities include, community or forum discussion and blog and other social media website link interface.
- ❖ The back end interface includes features for administration to manage buyer and seller accounts, payment settings, gallery setting, etc.

Advantages of C2C E-Commerce

- ➢ It is always available so that consumers can have access to whenever they feel like shopping
- ➢ There is regular updating of the website
- ➢ Consumers selling products to other consumers benefit from the higher profitability that result from selling directly to one another
- ➢ There is a low transaction cost; sellers can post their goods over the internet at a cheaper rate far better than higher price of renting a space in a store
- ➢ Customer can directly contact sellers and do without an intermediary.

Disadvantages of C2C E-Commerce

- Payment made has no guarantee
- There could be theft as scammers might try to create their website with names of some famous C2C websites such as eBay to attract customers.
- There is lack of controlling quality of the products.

C2C e-commerce websites must update their technologies to suit the current happenings in their business. It is every body's wish to buy or sell without any threat to their security. C2C e-commerce websites to upgrade their security measures to arrest the situation of scammers and fraudsters that pose threat to the security of consumers and sellers. C2C e-commerce websites should increase their payment technology to allow consumers to purchase products at ease.

2.6.4 Consumer - to - Business (C2B)

Customer to Business (C2B), sometimes known as Consumer to Business, is the most recent E-Commerce business model. In this model, individual customers offer to sell products and services to companies who are prepared to purchase them. This business model is the opposite of the traditional B2C model.

C2B (**Customer to Business**) is a model where initiative comes from the customers (consumers) and enterprises are the target group. The customers actively contact the enterprises via the Internet and raise questions, suggestions and ideas that can be used, for example for product or service innovation. The enterprises can facilitate the C2B model by setting, for example discussions forums on their websites or their pages on social networks. In these cases, the Word Of Mouth Marketing applies.

In this model, a consumer approaches website showing multiple business organizations for a particular service. Consumer places an estimate of amount he/she wants to spend for a particular service. For example, comparison of interest rates of personal loan/ car loan provided by various banks via website. Business organization that fulfils the consumer's requirement within specified budget approaches the customer and provides its services.

Elance was one of the first web sites to offer this type of transactions. It allows sellers to advertise their skills and prospective buyers to advertise projects. Similar sites such as People per hour and Guru work on the same basis.

General features of C2B

– Direct action.

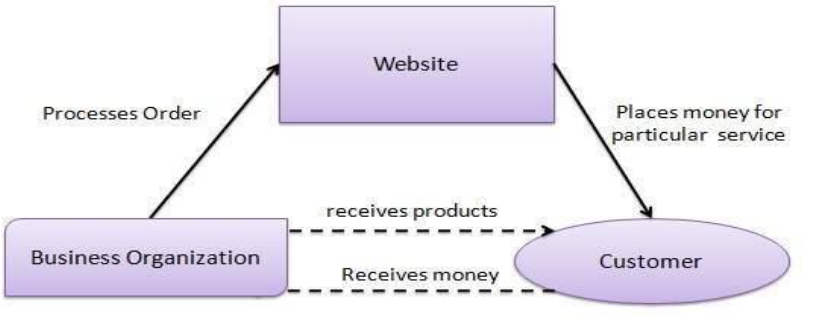
– Collaborative consumption.

– Detailed segmentation.

– Interaction.

– Reciprocity.

– Bi-directionality.



The advent of the C2B scheme is due to major changes:

- Connecting a large group of people to a bidirectional network has made this sort of commercial relationship possible. The large traditional media outlets are one direction relationship whereas the internet is bidirectional one.
- Decreased cost of technology : Individuals now have access to technologies that were once only available to large companies (digital printing and acquisition technology, high performance computer, powerful software)

There are only a few kinds of companies whose trading models could be considered as C2B.

Online Advertising sites like Google Adsense, affiliation platforms like Commission Junction and affiliation programs like Amazon are the best examples of C2B schemes. Individuals can display advertising banners, contextual text ads or any other promotional items on their personal websites. Individuals are directly commissioned to provide an advertising/selling service to companies.

The new C2B business model is a revolution because it introduces a new collaborative trading scheme paving the way for new applications and new socio-economical behaviours

Advantages and Disadvantages of C2B

C2B Advantages

1. Could be described in terms of paths, nodes, properties
2. Could be graphic, examples could be generated.
3. One single place for all Magnolia configurable elements.
4. Could still be linked to java doc

2.6.5 Brokerage Model

Brokers are market-makers: They bring buyers and sellers together and facilitate transactions. The Brokerage Model in e-commerce resembles the offline brokerage model where the broker acts as a third party connecting sellers and buyers to a transaction and charges fees for their services. The advantage of e-commerce affords brokers the ability to connect buyers and sellers globally in contrast to the offline world where a broker may be restricted to a certain region within their local market.

For example, in the offline world, a mortgage broker who connects people looking to purchase a house with financial institutions who sell Mortgages, may be restricted to their local area, hence creating a finite group of potential buyers.

In contrast, as a result of the Internets inherent globalisation an e-commerce mortgage broker has the potential to reach people located outside their local area, in other states and other countries, drastically increasing the number of potential buyers, their ability to connect more buyers with sellers, and thus make better profits. It is well documented that eBay is one of the most successful Auction Brokers in e-commerce.

eBay, like most companies on the Web, employ a number of business models in order to make money. While the dominant model they leverage is the Brokerage model, eBay also utilise the affiliate, advertising and community business models to sustain their presence in e-commerce.

Brokers play a frequent role in business-to-business (B2B), business-to-consumer (B2C), or consumer-to-consumer (C2C) markets. Usually a broker charges a fee or commission for each transaction it enables. The formula for fees can vary. **Brokerage models include:**

Marketplace Exchange -- provides a full range of services covering the transaction process, from market assessment to negotiation and fulfilment, for a particular industry. The exchange can operate independently of the industry, or it can be backed by an industry consortium. The broker typically charges the seller a transaction fee based on the value of the sale. There also may be membership fees.

Business Trading Community -- or vertical web community, is a comprehensive source of information and interaction for a particular vertical market. A community may contain product information, daily industry news and articles, job listings and classifieds.

Buy/Sell Fulfilment -- customer specifies buy or sell orders for a product or service, including price, delivery, etc. The broker charges the buyer and/or seller a transaction fee.

Demand Collection System -- the patented "name-your-price" model pioneered by Priceline. Prospective buyer makes a final (binding) bid for a specified good or service, and the broker arranges fulfilment.

Auction Broker -- conducts auctions for sellers (individuals or merchants). Broker charges the seller a listing fee and commission scaled with the value of the transaction. Auctions vary in terms of the offering and bidding rules. Reverse auctions are a common variant.

Transaction Broker -- provides a third-party payment mechanism for buyers and sellers to settle a transaction. [fsbohouse.com]

Bounty Broker -- offers a reward for finding a person, thing, idea, or other desired, but hard to find item. The broker may list items for a flat fee and a percent of the reward for items that are found.

Distributor -- is a catalogue operation that connects a large number of product manufacturers with volume and retail buyers. Broker facilitates business transactions between franchised distributors and their trading partners.

Search Agent -- is an agent (i.e., a software agent or "robot") used to search-out the price and availability for a good or service specified by the buyer, or to locate hard to find information?

Virtual Mall -- hosts online merchants. The Mall typically charges setup, monthly listing, and/or per transaction fees. More sophisticated malls provide automated transaction services and relationship marketing opportunities

2.6.6 Value chain Model

A value chain for a product is the chain of actions that are performed by the business to add value in creating and delivering the product. Activities which comprise of the value chain are undertaken by companies to produce and sell product and services. All companies undertake series of activities in order to deliver a product to the customers. These series of activities understand customer needs, designing products, procuring materials, production, storage of products, distribution of products, after sale services of products and customer care.

The function of value chain activities is to add value to product at every stage before it is delivered to the customers. There are two components, which make value chain - primary activities and secondary activities. The primary activities are directly associated with the

manufacturing of products like supply management, plant operations, etc. The secondary activities are referred to as support functions such as finance, HR, information technology, etc.

G. Winfield Treese and Lawrence C. Stewart suggest four general value-chain areas:

- Attract -- in which you get and keep customer interest, and includes advertising and marketing
- Interact -- in which you turn interest into orders, and includes sales and catalogues
- Act -- in which you manage orders, and includes order capture, payment, and fulfilment
- React -- in which you service customers, and includes technical support, customer service, and order tracking.

In the era of advanced information and communication technology, many businesses have started operations on the internet as its medium. Through the internet, many commercial activities like buying, selling, auctioning is taking place. This online commercial activity is known as e-commerce. E-commerce value chain has series of activities like electronic fund transfer, internet marketing, distribution channel, supply chain etc.

2.6.7 Advertising Model

The web-advertising model is an extension of the traditional media broadcast model. The broadcaster is a web site, provides content and services like e-mail, chat, forums mixed with advertising messages in the form of banner ads. The banner ads may be the major or sole source of revenue for the broadcaster. The broadcaster may be a content creator or a distributor of content created elsewhere. The advertising model only works when the volume of viewer traffic is large or highly specialized.

Other E-Business Models

2.6.8 Business-to-Government (B-to-G):

Business-to-government (B2G) e-commerce is concerned with the need for business to sell goods or services to governments or government agencies. Such activities include supplying the army, police force, hospitals and schools with products and services. Furthermore, businesses will often compete in an online environment for contracts to provide services to the public on behalf of the government. Such services may include the collection of taxes, and the supply of public services. The exchange of information, services and products between business organizations and government agencies on-line. This may include,

- *E-procurement services*, in which businesses learn about the purchasing needs of agencies and provide services.
- *A virtual workplace* in which a business and a government agency could coordinate the work on a contracted project by collaborating on-line to coordinate on-line meetings, review plans and manage progress.
- *Rental of on-line applications and databases* designed especially for use by government agencies.

2.6.9 Business-to-Peer Networks (B-to-P):

This would be the provision of hardware, software or other services to the peer networks. An example here would be Napster who provided the software and facilities to enable peer networking.

2.6.10 Consumer-to-Government (C-to-G):

Examples where consumers provide services to government have yet to be implemented. See Government-to-Business.

2.6.11 Consumer-to-Peer Networks (C-to-P):

This is exactly part of what peer-to-peer networking is and so is a slightly redundant distinction since consumers offer their computing facilities once they are on the peer network.

2.6.12 Government-to-Business (G-to-B):

Also known as e-government, the exchange of information, services and products between government agencies and business organizations. Government sites now enable the exchange between government and business of:

- Information, guidance and advice for business on international trading, sources of funding and support (ukishelp), facilities (e.g. **www.dti.** org.uk).
- A database of laws, regulations and government policy for industry sectors.
- On-line application and submission of official forms (such as value added tax).
- On-line payment facilities.

This improves accuracy, increases speed and reduces costs, so businesses are given financial incentives to use electronic-form submission and payment facilities.

2.6.13 Government-to-Consumer (G-to-C):

It is also known as e-government. Government sites offering information, forms and facilities to conduct transactions for individuals, including paying bills and submitting official forms on-line such as tax returns.

2.6.14 Government-to-Government (G-to-G):

It is also known as e-government. Government-to-government transactions within countries linking local governments together and also international governments, especially within the European Union, which is in the early stages of developing coordinated strategies to link up different national systems.

2.6.15 Peer–to-Peer Network (P-to-P):

This is the communications model in which each party has the same capabilities and either party can initiate a communication session. In recent usage, peer-to-peer has come to describe applications in which users can use the Internet to exchange files with each other directly or through a mediating server.

2.6.16 Peer Network-to-Consumer (P-to-C):

This is in effect peer-to-peer networking, offering services to consumers who are an integral part of the peer network.

2.6.17 Peer Network-to-Business (P-to-B)

Peer-to-peer networking provides resources to business. For example, using peer network resources such as the spare processing capacity of individual machines on the network to solve mathematical problems or intensive and repetitive DNA analyses which requires very high capacity processing power.

M-commerce:

Mobile commerce is the buying and selling of goods and services through wireless technology-i.e., handheld devices such as cellular telephones and personal digital assistants (PDAs). Japan is seen as a global leader in m-commerce. As content delivery over wireless devices becomes faster, more secure, and scalable, some believe that m-commerce will surpass wire line e-commerce as the method of choice for digital commerce transactions.

Industries affected by m-commerce include:

- **Financial services**, including mobile banking as well as brokerage services.

- **Telecommunications,** in which service changes, bill payment and account reviews can all be conducted from the same handheld device;
- **Service/retail,** as consumers are given the ability to place and pay for orders on-the-fly; and
- **Information services**, which include the delivery of entertainment, financial news, sports figures and traffic updates to a single mobile device.

This framework can be used by organizations to segment their customers and distinguish the different needs, requirements, business processes, products and services that are needed for each.

2.7 Summary

An electronic business model is an important baseline for the development of e-commerce system applications. Essentially, it provides the design rationale for e-commerce systems from the business point of view. However, how an e-business model must be defined and specified is a largely open issue. We therefore present what should be in an e-business model. There is little doubt that the Internet has introduced new and innovative business models to both the B2B and B2C markets. It has shortened the value chain and put increasing pressure on all players, but especially intermediaries, to add value or risk extinction.

2.8 Key Terms

1. **Portal** is a doorway, entrance, or gate, especially one that is large and imposing
2. **Portal space** is used to mean the total number of major sites competing to be one of the portals
3. **Business model** is the method of doing business by which a company can sustain itself -- that is, generate revenue
4. **E-Business model** is simply the approach a company takes to become a profitable business on the Internet
5. **B2B**: A type of commerce transaction that exists between businesses
6. **B2C**: It is the model involving business and consumers over the internet
7. **C2C**: E-Commerce involves electronically-facilitated transactions between individuals, often through a third party

8. **C2B**: In this model, individual customers offer to sell products and services to companies who are prepared to purchase them.
9. **P-to-C:** This is in effect peer-to-peer networking, offering services to consumers who are an integral part of the peer network.
10. **Mobile commerce**: Buying and selling of goods and services through wireless technology-i.e., handheld devices such as cellular telephones and personal digital assistants (PDAs).
11. **A virtual workplace:** in which a business and a government agency could coordinate the work on a contracted project by collaborating on-line to coordinate on-line meetings, review plans and manage progress.
12. **Virtual Mall** -- hosts online merchants. The Mall typically charges setup, monthly listing, and/or per transaction fees. More sophisticated malls provide automated transaction services and relationship marketing opportunities

2.9 Self Assessment Questions

1. What is Portal?
2. What is meant by Portal Space?
3. Give an account of various types of Portal
4. Trace out the birth of portals
5. What is meant by Business Model?
6. State the features of business model
7. Define E-Business Model
8. List out different types of E-Business Models
9. Explain various types of E-Business Models
10. State the advantages and disadvantages of B2B model.
11. Write a note on brokerage model
12. What is market place exchange?
13. Who is an auction broker?
14. Who is a transaction broker?
15. Write a note on B2G model

UNIT – III

E-Marketing

Learning Objectives

After reading this unit, you will be able to

- Understand the concepts of E-Marketing
- Differentiate Traditional Marketing and E-marketing
- Analyse the impact of E-Commerce on markets
- Know about internet marketing trends and strategies

Contents

3.1 Introduction

The development of E-Marketing has been one of the most important and influential trends in the field of business, marketing and information technology. It has revolutionized the manner in which certain businesses market their products and the manner in which businesses and consumers interact in the future. It can include information management, public relations,

customer service and sales. It is also known as Internet marketing. It is a component of electronic commerce.

This unit will highlight the importance of E-Marketing; examine how it helps businesses to reach their customers, some of the most important advantages and disadvantages, challenges and opportunities of E-Marketing.

3.2 E-Marketing Definition:

E-Marketing is the process of considering marketing activities and achieving marketing objectives through electronic medium. It may be defined as an economic process that involves the use of computer, internet and other electronic systems and network, whereby the goods or services are exchanged and their values in terms of price are determined.

CISCO specialists define E-Marketing as the sum of all activities a business conducts through the internet with the purpose of, attracting, winning and retaining customers.

E-Marketing involves the use of online networks, computer communication and digital interactive media to the marketing objectives of the organization. It enhances the functions of traditional form of marketing. Business organizations adopt marketing tactics like e-mail, banner ads, referrals, and video ads to attract and retain customers. For example, naukri.com helps job aspirants to get a suitable placement at an economic cost.

E-marketing means using digital technologies to help sell goods or services. These technologies are a valuable complement to traditional marketing methods. Though businesses will continue to make use of traditional marketing methods, such as advertising, direct mail and PR, E-Marketing adds a whole new element to the marketing mix. Many businesses are producing great results with E-Marketing. Its flexible and cost-effective nature makes it suitable for small firms too.

3.3 Objectives of E-Marketing

Different businesses may develop different E-Marketing objectives depending on their individual circumstances. A useful framework for developing effective E-Marketing objectives is the five S's framework, which includes:

1. Sell – using the internet to sell products and services

2. Serve – using the internet to serve customers

3. Speak – using the internet to communicate with customers

4. Save – using the internet to save/ reduce cost

5. Sizzle – using the internet to build brand identity

When setting E-Marketing objectives, make sure that they are:

Specific – specify what is to be achieved

Measureable – expressed in measurable terms such as key performance indicators, outcomes, numbers, percentage, dollars, etc.

Action-oriented – state which actions need to be taken and who will take them. **Realistic** – achievable with the resources available

Time Bound – establish specified time frames.

Examples of some typical e-marketing objectives could be:

- To achieve 20% online sales within the first year of launching online marketing campaigns
- To increase online sales for all products by 15% in 2016
- To grow email coverage to 50% of the current customer base by the end of next year
- To reduce the annual cost of direct marketing by 20% through E-Marketing

3.4 Importance of E-Marketing

E-Marketing gives access to the mass market at an affordable price and unlike TV or print advertising, it allows truly personalized marketing.

Specific benefits of E-Marketing include:

Global reach – A website can reach anyone in the world who has internet access. This helps to find new markets and compete globally with a small investment.

Lower cost – A properly planned and effectively targeted campaign can reach the right customers at a much lower cost than traditional marketing methods.

Measurable results – marketing by email or banner advertising makes it easier to establish effective campaign. Detailed information about customers' responses to advertising can be obtained.

Round the Clock – With a website, customers can find out about products even if office is closed.

Personalization – If the customer database is linked to the website, then whenever someone visits the site, you can greet them with targeted offers. The more they buy, the more you can refine your customer profile and market effectively.

One-to-one marketing – E-Marketing helps to reach people who want to know about your products and services instantly. For example, many people take mobile phones and PDAs wherever they go. Combine this with the personalized aspect of E-Marketing, very powerful and targeted campaigns can be created.

Better conversion rate – If there is a website, then ever your customers are only a few clicks away from completing a purchase. Unlike other media which require people to get up and make a phone call, post a letter or go to a shop, E-Marketing is seamless. With all these aspects E-Marketing has the potential to add more sales.

Instant information – One of the most important advantages is the speedy availability of the information. The clients/users can easily get information by navigating the internet, about the products that they want to purchase; besides, they can check the information at anytime.

Savings – It allows the companies to save money, since the online marketing campaigns don't require a large amount of investment.

Scope for expansion – It helps the expansion of the operations from a local market to national and international markets at the same time, offering almost infinite expanding possibilities.

Feedback – On the internet everything can be measured, thus it's easier for the companies to know if their campaign is working or not, which user is interested in their products, from which place, etc.

3. 5 Disadvantages of E-Marketing

1. Complex websites – Slow internet connections can cause difficulties. If the companies build too complex or too large websites, it will take too long for users to check or download them and they will get bored eventually.

2. Purchase without inspection – The e-commerce doesn't allow the user "to touch" the merchandise before purchasing it. Because of this, some salesmen are starting to guarantee the possibility of returning the product.

3. **Payment method** – Many users still do not trust in the electronic methods of paying and because of this give up buying online.

4. Lack of confidence – One of the major disadvantages may be the lack of trust of the users because of the constant virtual promotions that appear to be frauds. This is an aspect that deteriorates the image and reputation of honest companies.

5. Cash on Delivery (CoD) – Cash on delivery system is another disadvantage. It doesn't guarantee the 100% purchase of the product.

3.6 The e-Marketing Mix

The marketing mix can be synthesized in the expression of "the 4 P's", standing for Product, Price, Place and Promotion.

3.6.1 Product

Product – the first element of the marketing mix – includes investigation and research on the potential customers' needs in order to be able to develop products to satisfy these needs.

A classic definition of the "product" notion is that of Philip Kotler: a product is anything that can be offered on the marketplace, with the purpose of capturing interest, buying, usage or consumption, as long as it can satisfy a need or fulfil a wish. A product can be a physical object, service, person, place, organization or idea. The e-marketing works in many cases with non-physical products, and is situated more on the intangible, virtual side. As in classic marketing, the e-marketing product is developed and analyzed after the 3-level model introduced by Kotler.

The 3 levels of a product (Kotler)

The core product answers the question "What do consumers buy?" and consists in the services or main advantages sought by consumers.

The actual product is built around the core product and it may have one, several, or all of the following 5: quality, characteristics, style, brand name, packaging. The strategies at this level should ensure that the product offers a differential advantage from the competitors' products.

The augmented product: comes as the final and most sensitive layer of the total product. It complements the product with additional services and advantages such as after sales service, warranty, and delivery terms. In a highly competitive market, it's the augmented product that makes the difference and is pushing the buying decision.

Online options for the core product

In 1998, Ghosh proposed to evolve the product offerings using the Internet. He introduced the notion of 'digital value' to customers and suggested companies to ask themselves the following questions:

1. Can I offer additional information or transaction services to my existing customer base?
2. Can I address the needs of new customer segments by repackaging my current information assets or by creating new business propositions using the Internet?
3. Can I use my ability to attract customers to generate new sources of revenue such as advertising or sales of complementary products
4. Will my current business be significantly harmed by other companies providing some of the value I currently offer?

Another concept related to the product issues in e-marketing is that of the '**prosumer'**. It was introduced in 1980 by famous futurist Alvin Toffler in his book entitled "The Third Wave". Toffler sees a future that would mix production with consumption. He imagined a world where interconnected users would collaboratively "create" products. The "prosumer" idea was further developed and has been given alternative meanings, with great application in e-marketing. Logophilia WordSpy defines "prosumer" as:

1. A consumer who is an amateur in a particular field, but who is knowledgeable enough to require equipment that has some professional features ("professional" + "consumer").
2. A person who helps to design or customize the products they purchase ("producer" + "consumer").
3. A person who creates goods for their own use and also possibly to sell ("producing" + "consumer").
4. A person who takes steps to correct difficulties with consumer companies or markets and to anticipate future problems ("proactive" + "consumer").

The inner nature of a product can even be fundamentally altered. Rayport and Sviokla (1994) describe transactions where the actual product has been replaced by information about the product. In the same manner, the scope of the product offer may be changed online. For example, Tesco.com offers computers through its online presence, although it is impractical to sell such a range of products inshore.

Online options for the augmented product

The most important feature one can add to a product marketed online, is the interactivity and the possibility to provide extended product information. A known example is the printer manufacturer Epson, who let purchasers select the best printer for them by choosing options

such as print quality and speed which then automatically reduces the number of available printer options.

Other aspects of the augmented product that can be greatly addressed online: add-on services such as gift wrapping; product or brand endorsement such as Pepsi offering video interviews with David Beckham through their e-newsletter and web site; awards, testimonials; customer lists; warranties; guarantees; money back offers; customer service.

When acting on an online market, we have great opportunities to get closer to the customer. A simple way of doing so is the "Feedback" section of any efficient website. Such feedback can provide detailed and accurate information upon the customers, such as demographics, spending habits, purchase intentions in the following period and so on.

3.6.2 Price

Price is an extremely important element of the marketing mix, because it is the only one able to generate a turnover for the organization. When looking more deeply into the interactions between the 4 P's of the marketing mix, one observes that **Price** is a supportive element for the remaining 3 P's, because it costs to produce and design a **Product,** it costs to distribute it **(Place**) and definitely it costs to **Promote** it.

There is no single, consolidated view of how the use of internet interferes in pricing issues. We have to present two extreme viewpoints, discussed by Baker in 2001.

The first view is the inevitability of having decreased prices for products sold over the internet. Because the capabilities offered by the internet significantly increase the customer knowledge: consumers have tools such as price comparison sites, at both individual and organizational level.

The second view is that although price transparency is a great theory, the actual practice of the consumers is quite different. Baker's researches indicated that many online purchasers do not perform much research before buying. For example, it is estimated that 89% purchase books from first site and only 10% of online shoppers are aggressive bargain hunters. Another issue is made of barriers to prevent organizational buyers to use online marketplaces. Another impediment is the preference for a human face, especially when developing long-term relationships with a supplier.

Now let us review what options a marketer has, to set online pricing policies. The identified and most used options nowadays are:

- Differential pricing;
- Reverse B2B auctions;
- Pricing structure.

Differential pricing is basically means that a company that goes online would offer lower prices when selling online compared to the prices offered offline. A classic example is that of airway companies: almost all offer lower prices when you buy online than you can get from the company's offline offices.

There are three factors to assist in online pricing:

- precision: we must remember that any product has an indifference band, when varying price has almost no effect on sales. In the traditional approach, researches to determine these bands are very expensive, but the internet survey costs are much more affordable;
- adaptability: implies a quick response to the demands of the marketplace. With the internet-based technologies, it is often possible to alter prices according to the dynamic of the demand, thus adjusting prices to maximize profitability.
- segmentation: implies different prices for different groups of customers, usually by offering price facilities only in the cases when it is necessary to close the sale.

Reverse B2B auctions: are still a troubled practice even though it is widely used by some business sectors like chemicals, engineering. It is difficult to predict the evolution of reverse auctions since the buyers' behaviour is still confusing: half of them do not chose the lowest bidder, while over 80% prefer to stay with the current supplier.

Pricing structure: the internet technologies made possible to alter the traditional pricing structure and adapt it to the new market realities. Altering pricing structure is particularly suited for digital, downloadable products such as mp3's, software, e-books. While in the traditional commerce you would pay just once, for continuous use, in the online world you're offered more possibilities such as renting, pay-per-use, leasing.

Further pricing options that could be varied online include Basic Price, Discounts, Add-On's and extra products and services, Warranties, Refunds, Order Cancellation terms.

3.6.3 Place

Traditionally, the place element refers to how an organization will chose to distribute the product / service they are offering to the end user to achieve the overall marketing objectives efficiently.

A closer look into the marketing mix reveals that the biggest impact of the internet is upon the place element, for the simple reason that the internet has a global reach. Identified major implications of the internet upon the place aspect of the mix are:

Place of purchase, for which McDonald and Wilson (2002) identified five options:

Seller-controlled sites: those that are the main site of the supplier company which are e-commerce enabled;

- Seller-oriented sites: controlled by third parties, but represent the seller rather than providing a full range of options;
- Neutral site: independent evaluator intermediaries that enable price and product comparison and will result in the purchase being fulfilled on the target site;
- Buyer-oriented sites: controlled by third parties on behalf of the buyer;
- Buyer-controlled sites: involve either procurement posting on buyer-company sites or those of intermediaries that have been set up in such a way that it is the buyer who initiates the market making.

Navigation, with three key aspects proposed by Evans and Wurster (1999):

- Reach: the potential audience of the e-commerce site. Reach can be increased by moving from a single site to representation with a large number of different intermediaries.
- Richness: the depth or detail of information which is both collected about the customer and provided to the customer. This is related to the product element of the mix.

- Affiliation: refers to whose interest the selling organization represents – consumers or suppliers. This particularly applies to retailers, suggesting that customers will favour retailers who provide them the richest information on comparing products.

Localisation: the strategy of providing a local site, most of the times using the local language when the culture differences are significant from one marketplace to another.

New channel structures: some new structures were born, specific for the internet-based markets. They are:

- Disintermediation: refers to the possibility of performing direct sales. It can lead to channel conflicts and there are a number of barriers and facilitators to such change.
- Re-intermediation: new intermediaries who receive a commission on each sale resulting from a referral from their site.
- Countermediation: refers to possible partnerships with another independent intermediary, or setting up some own independent intermediary.

3.6.4 Promotion

The promotion as part of the marketing mix refers to how marketing communications are used to inform the audience about an organization and its products. The internet offers plenty new marketing communications channels to inform customers and assist during the purchase cycle. Internet technologies can be deployed to find new ways to improve and sustain advertising activities, sales promotions, public relations, or to proceed to direct marketing campaigns using e-mail or websites.

The promotion element of a marketing plan also requires taking strategic decisions about investment in the online communications mix. Example: “What is the balance between investment in site promotion compared to site creation and maintenance?” The site must be promoted just like you promote a product, in order to make it efficient and support your business. Since there is often a fixed budget for site creation, maintenance and promotion, the e-

marketing plan should specify the budget for each to ensure there is a sensible balance and the promotion of the site and e-marketing campaigns are not underfunded.

The Extended Marketing Mix

The model of the marketing mix, the 4 P's, was introduced more than 40 years ago. As consumers and businesses were subjects of continuous transformations and evolution, the classical mix became not sufficient in terms of strategies for a company to distinguish itself and achieve competitive advantage. Therefore, new service elements, has been added to complete the marketing mix:

- People;
- Process;
- Physical evidence.

The service elements of the marketing mix are as important in the virtual world as they are in the physical world. The extended marketing mix is also known as "the 3 P's", that add to the initial 4 P's.

3.6.5 People

The people element of the extended marketing mix refers to the how the staff of an organization interacts with customers and other stakeholders.

The main aspect of the people element when we are active in an online market, is the degree in which we can replace the staff with automation capabilities of the internet. There is several ways we can do that:

- Auto responders: automatically generated response when a company e-mails an organisation, or submits an online form.
- E-mail notification, generated by a company' system, with the purpose of updating customers on the status of their order.
- Call-back facility offers customers the opportunity to fill in their phone number on a form and specify a convenient time to be contacted.

- Frequently Asked Questions (FAQs). For these, the art is in compiling and categorising the questions so customers can easily find the question and a helpful answer with a possible solution.
- On-site search engines, to help customers find what they're looking for. Site maps are sometimes used with the same purpose.

3.6.6 Process

The process element of the marketing mix refers to the methods and procedures companies use to achieve all marketing functions such as new product development, promotion, sales and customer service. The restructuring of the organization and channel structures described for the product, price, place and promotion all require new processes to be performed.

3.6.7 Physical evidence is the element of the marketing mix that refers to the tangible expression of a product and how it is purchased and used. In an online context, physical evidence refers to customers' experience of the company through the web site and associated support. It includes issues such as site ease of use or navigation, availability and performance.

3.7Traditional Marketing Vs. E-Marketing

3.7.1 Traditional marketing is labelled traditional, because it incorporates the original methods of marketing and advertising through 4 basic ways; print, broadcast, direct mail and telephone. Before our digital era arose, these were the ways in which we would receive our necessary information and updates of products and services on offer.

Traditional Marketing is not too much different than sending a post card to everyone in a city to see if they need moving services. Sure it will get some business but it is wasteful and in the end may cost more than the revenue it generates. Generally, companies with a lot of advertising money will enter into this arena just to maintain their market share and there is little chance for growth.

Examples of traditional Marketing*:* Radio, TV, Yellow pages/Phone book, Newspapers, Magazines, Coupon books, Direct Mail, Billboards, etc

3.7.2 E-Marketing

E-Marketing helps to broaden the reach and filter impressions. For instance, a lot more demographics go to the internet for moving related topics than listen to a specific radio station. Marketing is then targeted to those who have searched or shown interest in moving related content. When money is paid for E-Marketing it is paid for the first call to action such as clicking an ad rather than just impressions. It means that money is now more focused on people with some level of interest in your services.

Examples of Internet Marketing: Purchased Leads, Google Adwords, SEO, Yelp, Google Local, Facebook/Twitter, Article Marketing, Content Marketing, Email Marketing

3.7.3 Comparison of Traditional Marketing Vs. E-Markeitng

Product promotion: E-commerce enhances promotions of products and services through direct, information-rich and interacting contact with customers.

Direct saving: The cost of delivering information to customers over the internet results in substantial savings to senders.

Customer Service: Customer service can be greatly enhanced by enabling customers to find detailed information online.

Brand Image: Newcomers can establish brand or corporate images very quickly through net and at affordable cost.

Advertising: Traditional advertising is one way communication to persuade customers to buy their products and services. In the electronic period, it is two way communication aims at customers to browse, explore, compare, question and even customer design the product configuration.

Customization: The ultimate luxury can get is in terms of custom designed products and services. The net offers a tremendous opportunity to understand customers needs one at a time and offer customized products and services.

Order making process: Taking orders from customers can drastically be improved if it is done electronically, this saves time and reduces expenses and so sales people have more time to sell their products or services.

Intermediaries: In traditional marketing middlemen are supposed to provide pace and time utilities to the ultimate customer, but advancement of information technology is turning intermediation in to disintermediation.

Customer Value: Traditional marketing tries to maximize the value per transactions; here customer attraction is big target. But in electronic marketing, the marketers are trying to form relationship with customers and they are looking for long term value maximization.

3.8 Impact of E-Commerce on Market

Marketing is one of the business functions most dramatically affected by emerging information technologies. Companies can use the web to provide ongoing information, service and support, create positive interaction with customers for long term relationships and encourage repeat purchases. It allows customers to sit in their homes and purchase goods. One can shop any kind of product or service in the mid of the night and from any part of the world.

During the agrarian economy, people engaged in the process of exchanging goods and services used the barter system, in this system, buyers and sellers knew each other and there was mutual dependence on each other for survival during this period.

During the industrial age the marketing term was coined to signify the need for identification and satisfaction process. In this system manufacturers/sellers did not have a face to face interaction with consumers, which led to problems for producers in understanding customer needs. To avoid this problem marketers are using different tools like advertising, direct marketing and E-commerce to exploit the gullible customers. E-Commerce expands the marketplace to national and international markets. With minimal capital outlay, a company can easily and quickly locate more customers, the best suppliers and the most suitable business partners worldwide.

The following discussion would highlight various impacts of E-Commerce on market

- It provides many potential benefits to consumers and organizations. These are:

- It enables customers to shop round the clock a day, all year around, through any part of the world.
- It provides customers with more choices; they can select from many vendors and from more products.
- It allows quick delivery, especially in case of digitalized products like music and books.
- It makes it possible to participate in virtual auctions.
- It allows customers to interact with other customers in electronic communities and exchange ideas as well as compare experiences.
- It allows customers to receive detailed and relevant information within seconds.
- It facilitates competition, which results in substantial discounts.
- It allows reduced inventories and overhead by facilitating 'pull' type supply chain management.
- It reduces the time between the outlay of capital and the receipt of products and services.
- It decreases the cost of creating, processing, distributing, storing and retrieving paper based information.
- Apart from this benefit it attracts improved image and customer services.

Apart from the above, the impact of e-Commerce has already begun to appear in all areas of business ranging from customer service to new product design. It has facilitated new types of information based interaction with customers, Internet bookshops, on-line super market, electronic newspapers, on-line trading on stock exchanges (e-Trading), on-line advertising (e-Advertising), on-line taxation (e-Taxation), online ticketing (e-ticketing), online banking (e-Banking), computerization in postal communication (e-Post) and so on. We shall take up some of these e-Commerce services to have an idea of how it has transformed the functioning in these sectors.

E-Banking

Imagine the days when long queues and waiting were the normal phenomena in a bank during a particular time of the day and on particular days of a week to deposit or withdraw money or to get a demand draft made. But, the scenario in banks now-a-days is very different. One can withdraw and deposit money at his/her own convenience. Having an account in one

place in India, one can transact in any part of the country. Some of the new trends in banking sector are as follows:

(a) **Telebanking:** A customer is given a password number (known as T-PIN i.e., Telephonic personal identification number) through which he can have access to his/her account over telephone and give instruction regarding withdrawal, issue of demand draft etc. The customer can also access his account and give instructions by using the mobile phone. Similarly, the bank can also keep on informing the customer regarding the various schemes, opportunities, last dates, etc.

(b) **Internet Banking:** This is another way a customer can have access to his account and give instructions. It makes the task of the customer easy as he can access his account anywhere, any time and any number of times. The customer simply uses a password number and gets the details of transactions sitting at home.

(c) **ATM:** ATM, the acronym for Automated Teller Machine, is increasingly becoming popular in banking industry. ATM is a computerized machine used for most of the routine jobs of a bank. It is operated by a magnetic plastic card popularly known as ATM card. By inserting the ATM card in the machine and entering the PIN (Personal Identification Number) the customer can use it for withdrawals and deposits of money.

The customer can also get the information about the balance available in his/her account, get the mini-statement of last 5/10 transactions from the ATM. Earlier the customers only had the option to access the ATM of the bank in which they had an account. But now-a-days some banks have tied-up with other banks for use of their ATM by the customers. So customers can use the ATM facility even of a bank they do not have an account in, but with whom their bank has a tie-up.

(d) **Debit Card:** A debit card is an electronic card that can be used conveniently while making payments. This card is issued to the customers of the bank having current or savings deposit account. The holder of this card can use this card at several outlets for purchase of goods and services. This card allows the holder to spend up to the balance available in his/her bank account. It can also be used at ATMs just like ATM cards.

(e) **Credit Card:** Some banks issue credit cards to individuals who may or may not have an account with them. The cards are issued to individuals after verifying their credit worthiness. The individual can use those cards at various outlets to make payments. The issuing bank fixes a

credit limit up to which the cardholder can purchase goods and services. The bank issues a statement of transactions periodically and the individuals have to pay back the amount to the bank by a due date. Thus, the customers get a credit period ranging from 10 to 55 days which varies from bank to bank and the nature of transactions. No interest is charged if the payment is made within the due date. If the customers fails to pay by due date, the bank charges interest at a high rate on the amount due. Most banks give bonus points for transactions and insurance coverage for the products purchased through credit card as well as to the cardholders. The cardholder can also use his/her card to withdraw cash from ATMs.

E-Ticketing

Purchasing tickets has become so easy now that you can make railway reservations sitting at home or even while you are on the move. If you have access to Internet you can have all the details of railway information and accordingly you can book a ticket. You have to make payment through credit cards/debit cards for on-line booking of tickets. You can also buy air tickets through similar methods. Recently, with private sector entry in aviation sector, the competition has increased and bidding of air tickets through Internet has started. The highest bidder avails the opportunity of travelling at a rate much lower than the original price. The e-Ticketing service is also available through mobile phones.

E-Advertising

Internet advertising has revolutionized marketing strategies. Unlike the print and television media where all advertisements are stacked together, the viewer has the choice either to view it or ignore them. On the other hand, in the net-world the surfer will only click on the advertisement of his/her choice. He may select advertisements of his own interest.

E-Trading

On line trading has started with the establishment of OTCEI. Now the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) have also completely switched over to online trading to which most stock-brokers have access through internet. It is also taking off among small investors and traders in stock and shares. Internet makes available to them up-to-the-minute information which, until recently, had only been available to financial institutions. The use of on-line brokerage services automates the process of buying and selling. This allows reduction in brokerage charges, makes trading transparent as they can access the information on market prices on-line, and the investor is able to deal at a price viewed immediately. The transfer of ownership

of stocks and shares can also be recorded electronically in investor's Demat accounts thereby avoiding the need for physical delivery.

Computerization of Mail Transmission and Processing

As a part of modernization programme, computerization of the registration and sorting work has been done in a large number of post offices in India. To cut down the transmission time for sending money order across the country, money orders are now transmitted through VSAT satellite networks which have resulted in faster delivery of money order to the customers. New policy for Voice mail/Audio fax services was announced by incorporating a new service known as Unified Message Service (UMS), a system by which voice message, mails, fax and e-mail can be received from one mail box using telephone instrument, fax machines, mobile phones, internet browsers, etc.

E-Post

E-mail is the fastest means of communication. To send and receive any information through e-mail, we need to have a computer with Internet connectivity and the e-mail account of the sender and receiver. However, this technology has not yet reached the rural and other remote areas of our country. To bridge this gap and extend the benefit of the e-mail facility to the people of rural India, the Department of Post has introduced e-Post facility. It enables people to send and receive e-mail at the post offices. E-Post is a service under which printed or even handwritten messages are transmitted as email on internet. At the destination post offices, these messages are printed, enveloped and delivered through the postman like other letters. The post offices where this facility is not available can receive the e-Post message from the customers and forward the same to the nearest e-Post centre for dispatch. E-Post messages received for areas beyond the delivery jurisdiction are printed and sent to concerned post office for delivery. Besides availing e-Post services through post office it can also be accessed from a customer's house or office or from any other places if he has Internet access. The customer can make payment through a prepaid card that is available in the head post office and other outlets. The customer has to register as a user and access the service at the e-Post portal http://indiapost.nic.in.

3.9 MARKETING ISSUES ON E-MARKETING

Opportunities and threats

The use of electronic commerce by business in developed countries has grown considerably in the past few years. In the near future, E-commerce will bring a change in not

only the way in which the trade is conducted, but also a change in the volume of goods traded between countries. It is also changing manufacturing and distribution systems, product design, and the relationship between the producer and consumer.

The changes to the current trading volume could have a negative effect on some international environmental objectives such as sustainable development. There is also a potential for developing countries to be further exploited by developed countries as e-commerce matures. Besides, there are questions as to whether the internet will increase the "digital divide" between the "haves and have-nots."

While e-commerce may have negative impacts on some aspects of international trade and the environment, there are some "green" companies who are looking at e-commerce as a way to positively impact trade and the environment. These companies have some innovative business models that will likely bring environment-friendly goods to both consumers and businesses.

There are some other likely benefits to be gained from the growth of e-commerce such as a reduction in the need for warehouses and retail stores, and a further reduction in the need for the associated finished materials, energy, and land consumed by these structures.

3.10 E-ADVERTISING

E- Advertising or Online advertising or Internet advertising is a marketing strategy that involves the use of the Internet as a medium to obtain website traffic and target and deliver marketing messages to the right customers. It is geared toward defining markets through unique and useful applications.

Delivery methods

Display advertising

Display advertising conveys its advertising message visually using text, logos, animations, videos, photographs, or other graphics. Display advertisers frequently target users with particular traits to increase the effect of advertisements. Online advertisers often use cookies, which are unique identifiers of specific computers, to decide which ads to serve to a particular consumer. Cookies can track whether a user left a page without buying anything, so the advertiser can later retarget the user with ads from the site the user visited.

As advertisers collect data across multiple external websites about a user's online activity, they can create a detailed picture of the user's interests to deliver even more targeted advertising. This aggregation of data is called **behavioural targeting**.

Advertisers can also target their audience by using contextual and semantic advertising to deliver display ads related to the content of the web page where the ads appear. Retargeting, behavioural targeting, and contextual advertising all are designed to increase an advertiser's return on investment, over untargeted ads.

Advertisers may also deliver ads based on a user's suspected geography through **geo-targeting**. A user's IP address communicates some geographic information (the user's country or region). It helps to narrow the range of possible locations. For example, with mobile devices, advertisers can sometimes use a phone's GPS receiver or the location of nearby mobile towers.

Web banner advertising

Web banner ads typically are graphical ads displayed within a web page. Many banner ads are delivered by a central ad server. Banner ads can use rich media to incorporate video, audio, animations, buttons, forms, or other interactive elements using Java applets, HTML5, Adobe Flash, and other programs.

Frame ad (traditional banner)

Frame ads were the first form of web banners. The colloquial usage of "banner ads" often refers to traditional frame ads. Website publishers incorporate frame ads by setting aside a particular space on the web page. The Interactive Advertising Bureau's Ad Unit Guidelines proposes standardized pixel dimensions for ad units.

Pop-ups/Pop unders

A pop-up ad is displayed in a new web browser window that opens above a website visitor's initial browser window. A pop-under ad opens a new browser window under a website visitor's initial browser window.

Floating ad

A floating ad or overlay ad is a type of rich media advertisement that appears superimposed over the requested website's content. Floating ads may disappear or become less obtrusive after a preset time period.

Expanding ad

An expanding ad is a rich media frame ad that changes dimensions upon a predefined condition, such as a preset amount of time a visitor spends on a webpage, the user's click on the

ad, or the user's mouse movement over the ad. Expanding ads allow advertisers to fit more information into a restricted ad space.

Trick banners

A trick banner is a banner ad where the ad copy imitates some screen element users commonly encounter, such as an operating system message or popular application message, to induce ad clicks. Trick banners typically do not mention the advertiser in the initial ad, and thus they are a form of bait-and-switch. Trick banners commonly attract a higher-than-average click-through rate, but tricked users may resent the advertiser for deceiving them.

News Feed Ads

"News Feed Ads", also called "Sponsored Stories", "Boosted Posts", typically exist on Social Media Platforms that offer a steady stream of information updates ("news feed") in regulated formats (i.e. in similar sized small boxes with a uniform style). Those advertisements are intertwined with non-promoted news that the users are reading through. Those advertisements can be of any content, such as promoting a website, a fan page, an app, or a product. This format of online advertisement yields much higher click-through rates than traditional display ads

Some examples are: Facebook's "Sponsored Stories", LinkedIn's "Sponsored Updates", and Twitter's "Promoted Tweets".

Interstitial

An interstitial ad displays before a user can access requested content, sometimes while the user is waiting for the content to load. Interstitial ads are a form of interruption marketing.

Text ads

A text ad displays text-based hyperlinks. Text-based ads may display separately from a web page's primary content, or they can be embedded by hyperlinking individual words or phrases to advertiser's websites. Text ads may also be delivered through email marketing or text message marketing. Text-based ads often render faster than graphical ads and can be harder for ad-blocking software to block.

Search Engine Marketing (SEM)

Search engine marketing (SEM) is designed to increase a website's visibility in search engine results pages (SERPs). Search engines provide sponsored results and organic (non-sponsored) results based on a web searcher's query. Search engines often employ visual cues to

differentiate sponsored results from organic results. SEM includes all of an advertiser's actions to make a website's listing more prominent for topical keywords.

Search Engine Optimization (SEO)

Search engine optimization (SEO) attempts to improve a website's organic search rankings in SERPs by increasing the website content's relevance to search terms. Search engines regularly update their algorithms to penalize poor quality sites that try to game their rankings, making optimization a moving target for advertisers.

Sponsored search

Sponsored search (also called sponsored links, search ads, or paid search) allows advertisers to be included in the sponsored results of a search for selected keywords.

Social Media Marketing

Social media marketing is commercial promotion conducted through social media websites. Many companies promote their products by posting frequent updates and providing special offers through their social media profiles.

3.10.1 Advantages of online advertising:

Extensive coverage:

Online advertising releases wide range of advertising information, regardless of time and geographical constraints. From the advertising point of view, the wider the scope of dissemination of information, human contact, the more advertising effect will be. From the advertisers market, even a small business is likely to become an international company overnight.

Large-capacity information:

Capacity to provide information is unrestricted. Businesses or advertising agencies can provide advertising information and instructions equivalent of thousands of pages without having to worry about the increase on the advertising costs as that of traditional media. The network behind small banner ads, companies can put their company and its products and services, including product performance, price, model, morphology, etc. It seems necessary to explain all audiences, including detailed information made into a web page on their website.

Strong interaction with sensory:

Online advertising carrier is basically a multimedia, hypertext format, as long as the audience interested in a certain kind of product, you can tap the mouse further to know more, much more

detailed and vivid information so that consumers can personally "experience" products, services and brand. As virtual reality and other new technologies to online advertising, immerse experience for customers such as goods or services, and to book online, trading and settlement will greatly enhance the effectiveness of online advertising.

Real-time and long-lasting unity:

Internet media has the right to change the function of information, companies can make changes at any time according to need, 24 hour warehouse industry can adjust product prices, product information, can instantly get the latest product information dissemination to consumers. Online media can also be long-term preservation advertising information. Enterprise established for the product website can remain, waiting for consumer inquiries, enabling real-time and persistence unity.

Non-compulsory transfer of information:

As we all know, newspaper ads, magazine ads, TV ads, radio ads, outdoor advertising and so has a compulsive, forced indoctrination into your brain. The online advertising belongs on demand advertising, thus saving time and avoiding ineffective passive attention.

3.10.2 Disadvantages of online advertising:

Internet advertising has obvious advantages over traditional advertising, and also unavoidably brings its disadvantages, mainly in the following aspects:

Visitors to their online advertising "filtered":

Some visitors simply do not want to see, let alone have report responses. This situation is similar to other media, only a handful of consumers will buy your product. The biggest difficulty lies in selecting the right online advertising target market; otherwise it is difficult to bring about the final ad buying behaviour.

Network technology to filter the ads:

On the one hand for the advertising network provides more space, opportunities, tools, and the origin of Internet culture itself is obnoxious commercialism, so there have been some network software and tools will plant a report as a network of cultural dregs filter out. In doing online advertising company, be sure to verify that the target market has a tendency to extreme aversion to commercial advertising, whether the use of these filters online advertising tool.

Lack of skills and marketing skills:

Internet advertising is the guiding ideology of the "information marketing" rather than the "impression inducement," but the expression and transmission of information still need presentation skills to attract consumers. Therefore, only the aspects of the product and the information listed here is definitely not form a successful online advertising. Traditional advertising to generate an irresistible impression and attractive presentation skills and marketing skills in online advertising is still needed, even more demanding. How to marketers to consumers in rich information resources at the same time, but also have a strong attraction for them is a huge challenge.

Online advertising marketing personnel requirements are higher than other media:

Compared to online advertising can almost be seen as a microcosm of the entire marketing, which involves how to attract customers to interact with customers, etc., which is the traditional advertising to customers impressed goals have to go very far. In short online advertising requires marketer's integrated use of traditional advertising performance practices, providing information on the use of soft methods of marketing and network marketing techniques.

3.11 Internet Marketing Trends

Marketers are constantly looking into the future, trying to predict the next big trend, be it for their brands or their clients. Naturally, marketers are preoccupied with questions like: What is the next big campaign? How can we turn our client into the "next big thing"? What is the next hot trend going to be in retail? Etc. Everyone wants to the answers. Knowing this, what do some of the top minds in marketing predict for their own futures? Here are the 10 trends that are going to have the biggest impact on the future of marketing.

1. Mobile is going to become the centre of marketing. From cell phones to smart phones, tablets to wearable gadgets, the evolution of mobile devices is one of the prime factors influencing the marketing world. As the focus is shifting to smaller screens, brands will be able to strike up a more personalized relationship with their customers by leveraging the power of mobile.

2. Transparency will dictate brand-customer relationships. Currently, customers are seeking more engagement from brands. This trend will continue with customers becoming more demanding in their expectation of transparency. Genuine brands – the ones that "walk the talk"

and create real value – will be rewarded. This means brands that still haven't made their customer dealings transparent are headed to a future of doom.

3. The need for good content will not slow down. Content, particularly visual content, will rule the roost in the online marketing world, evolving into various forms and disrupting the conventional marketing models. Moreover, the speed at which a brand can create amazing content will play a part in their success.

4. User-generated content will be the new hit. The power of user-generated content will surpass branded content as brands begin to relinquish control of their own brands' marketing to their customers. From online reviews, to social media posts and blogs, this means there will be a strong need for brands to create a positive impact in their consumers' minds. In response to this model of content production, content co-creation between brands and consumers will become a popular trend.

5. Social will become the next Internet. Social will become an integral part of the "broader marketing discipline." As its impact grows stronger, most brands will fully transition their marketing efforts to social channels. As such, social has the full potential to become not just one of the channels but the channel.

6. Brands will own their audience. By cultivating brand community and entering into direct conversations with their customers, brands will begin to own their audience in a way that will create loyalists and brand advocates. In the future of marketing, branding and marketing efforts will have their seeds rooted in what customers are talking about. The customers' responses and feelings toward the brand will dictate future campaigns. Essentially, if the customers are happy, they'll gladly wear the marketer's hat and do what is needed to bring their favourite brand in focus.

7. Brands solely-focused on Millennials will go out of relevance. Brands will need to understand that the millennials are not a niche "youth" segment but a generation of people who will ultimately give way to a newer generation. Therefore, millennial-focused brands will have to change their game to stay relevant.

8. Good brands will behave like product companies and not like service companies. While service companies aim to create a happy customer and look forward to a contract renewal, product companies thrive on innovation. So, for brands of the future, customer satisfaction and

retention will not be enough. They will need to innovate more efficiently to create more value for their customers. However, great service will NEVER go out of style.

9. Personalized, data-driven marketing will become more refined. There is a difference between data-driven marketing and intrusive marketing. While the former is based on relationship-building, the latter is nothing but old-school push marketing wrapped in a new cover. The difference between these two formats will become even more prominent in future. Marketers who focus on relationship building will be rewarded, while intruders will be shut out.

10. More accurate metrics will surface. What most brands do in the name of measuring marketing success is look at hollow "vanity" metrics such as likes, shares, or tweets. Even in terms of data mining, we are still developing more sophisticated means to capture the right data. Many ideas are hypothesized, but few are practical. The future will witness the rise of better analytical tools to help marketers gauge the success of their campaigns.

3.12 Internet Branding

The word "brand" is derived from the word "brandr" meaning "to burn. Brand is the "Name, term, design, symbol, or any other feature that identifies one seller's product distinct from those of other sellers.".

In accounting, a brand defined as an intangible asset is often the most valuable asset on a corporation's balance sheet.

Brand means Trademark, Logo or Trade name under which a product or service is sold in market. Company means business organization/company which manufactures or provides service to customers. Eg. Nokia India Pvt. Ltd. is the name of the company and its Brand name is NOKIA under which it sells its Products.

Brand consists of Name Logo Tagline Shapes Colors Sounds Movements Etc

How Brand is found: Adopted to differentiate one person's cattle from another symbols are burned into the animal's skin with a hot iron stamp, subsequently the same technique is used in business, marketing, and advertising.

Internet branding (also known as **online branding or E-Branding**) is a technique that uses the World Wide Web as a medium for positioning a brand in the marketplace. Website creation and optimization, social media, blogs, online press releases, and video marketing are all methods used for online branding purposes.

E-branding refers to the sum total of a company`s values, attitudes, vision, mission, personality and appearance that is projected to the audience online.

Types of Brands

- **Initialism**: Name made of initials. Eg: UPS or IBM
- **Alliteration**: Names fun to say. Eg: Reese's Pieces or Dunkin' Donuts
- **Evocative**: Names evoke a relevant vivid image. Eg: Amazon or Crest
- **Neologisms**: Completely made-up words. Eg: Wii or Kodak
- **Foreign word**: Adoption word from another language. Eg: Volvo or Samsung
- **Founders' names**: Using the names of Founder. Eg: Hewlett-Packard, Dell or Disney
- **Geography**: Brands named for regions and landmarks. Eg: Cisco and Fuji Film

Purposes of Internet Branding

- To create a direct relationship between Customer and Brand owners
- To help in better sales & Brand loyalty
- To strengthen the market position of the organization

Benefits of Internet Branding

- Easy to survive among competitors
- Helps to build familiarity and loyalty from consumers
- Convenient to gain reputation amongst customers
- Becomes the digital asset for a company
- Result in higher sales of not only one product, but other products associated with brand
- Helps to be a part of the grand global internet community of the 21st century
- Easy to expand customer relationship

Advantages to Consumers

- Consumes less time in Shopping.
- The quality of product is better
- Prices are fixed by the company and there are no changes.
- Products own the responsibility.

Advantages to Producers

- Name helps in advertising in an easier way.
- Name establishes the permanent identity of the product
- Name promotes repurchasing

- Competition becomes easier with the help of brand loyalty

Effective Ways to Maximize E-Branding Presence

In the competitive age we live in, in order to succeed online, branding must be highly recognizable, relatable, and authentic; thereby setting itself apart from the competition. High visibility of brand increases credibility and customers will be more willing to retain your product/services.

Creating an awareness of online brand is about capturing the attention of the targeted audience. Consumer's today look to connect directly with business owners and hear their stories before they make a decision on whether to buy their products/services. With that in mind, let's examine seven key insights as to how to effectively maximize online brand presence:

1. Be Consistent With Branding. Ask one question: "What is my business really about?" It is very important to display a consistent branding strategy across all online channels. This creates brand recognition and helps to reinforce the brand. It is common for a business to use several channels to reach out to customers. For example, a business may use its website, several social networks, blogs, document sharing sites, etc.

2. Optimize Your Website. Creating and maintaining a website is one of the most important branding tools for any business. Website optimization for optimal performance on search engines is one thing companies can do to drive traffic to a website and improve the brand's visibility.

3. Social Media. Social Media Marketing is one of the most effective and cost effective ways to promote both small businesses and corporations and enhance the visibility of brand. Social Media Marketing promotes visibility, brand loyalty, recognition and can also increase sales. In addition, social media marketing allows small businesses and established ones to compete with an advantage.

4. Produce and Distribute Great Quality Content. Creating and distributing quality content is the best way to gain visibility online. It is one of the most effective marketing strategies to create brand recognition online.

5. Press Release Marketing. Press release distribution is a very effective and inexpensive way to enhance brand visibility and recognition. If it is picked up by Google News, your company will receive additional coverage for your brand.

6. Leverage Video Marketing. Businesses of all sizes and scale can benefit from video marketing i.e., YouTube, Vimeo, Metcafe, etc. Posting branded videos relevant to your niche is a

very effective way to promote business, drive traffic to your website, and get your brand noticed in front of a targeted audience.

7. Start a Blog. Having a blog can enhance brand visibility and improve chances of success. In fact, blogging is one of the most effective ways to improve the visibility of the brand online. Blogging greatly improves search engine rank, establishes validity in brand and increases reach. In addition, blogging helps to cultivate relationships with customers and other influencers.

8. Authentic. As a final point, when creating an online brand presence, don't attempt to create your online brand like any other brand in the market. Be authentic. If you can be open and honest with yourself about your brand's value, you will be able to authenticate this value when creating your online brand presence.

3.13 Marketing strategies

Marketing Strategies are made not only to attract customers but also to retain the existing customers. Online Marketing Strategies too are made for the same purpose. Following are some of the strategies that can be adopted in online marketing:

- E-Mail marketing strategies
- Affiliate marketing strategies
- Viral marketing strategies
- Brand leveraging strategies
- Search engine optimization (SEO)

E-Mail marketing strategies

Business organization s send e-mail messages to people who have requested information about a specific product. This is called opt-in-email and this strategy is called Permission Marketing Strategy. E-mail allows marketers to deliver different advertisements to different customers based on market segmentation. It allows users to see graphic images and text that really impresses them. The users also get transported to the related website by clicking on the link in the message. Finally, the behaviour of the customer collected from the database can be integrated by the marketers to send sales promotion e-mails to the customers.

For example, if a visitor had visited the website of UNIVERCELL to read about the latest arrival of Mobile phones, then the information can be utilized by UNIVERCELL to send a coupon or information through direct e-mail to the customer. It attracts the customer and may

result in purchase of mobile phone. Some marketers also send e-mail even without receiving any request for information from the customers. It is known as unsolicited commercial e-mails

Affiliate marketing strategies

Low budget websites are using affiliate marketing strategy to generate revenues. Affiliate's firm website contains description, rating and information about a product that is linked to another organization's website that offers the product for sale. Marketers pay affiliates to forward customers to their websites. The pioneer of affiliate marketing is amazon.com.

Affiliate member must feature a link to amazon's site. When an internet user buys any product on amazon's website after having gone there through a link, the affiliate member link which had forwarded the buyer to amazon.com receives the commission.

There are three types of affiliate marketing programmes.

1. Click through – affiliates are paid for each visitor who clicks through the banner or button/link and goes to the sellers' page.
2. Lead Generation – affiliates are paid if the marketer is able to register the user.
3. Revenue sharing – affiliates are paid when he customer makes a purchase

Viral marketing strategies

Viral marketing strategy approaches individual consumers to inform other persons about the products and services of a business organization. Business organizations believe that this marketing strategy can build good business as there is no face to face contact in electronic marketing.

For example, Blue Mountain Arts, an electronic greeting company adopts the viral marketing strategy. A greeting card recipient sends electronic greeting cards in turn to their friends. This method helped it to grow as the most visited site on the web.

Brand leveraging strategies

An organization leverages its dominant position by adding more features to the website that are useful to existing customers. This is called Brand leveraging strategy.

For example, Yahoo added a search engine function and leveraged its dominant position by acquiring other web businesses and widened its existing offerings.

Search engine optimization (SEO)

Search engine optimization (SEO) attempts to improve a website's organic search rankings in SERPs by increasing the website content's relevance to search terms. SEO is not just submitting site at search engine. It helps the internet user to identify the company's product or service available on the site when the users are searching for a product or a service. When a potential customer checks through search engine looking out for a product or service, marketers want their company's website to appear among the top 10 returned listings. The method of having a particular URL listed near the top of search engine results is called SEO. Search engine sites offer companies a paid placement which is the consideration of purchasing a top listing on the result pages.

For example, Sify.com is specialized in SEO. It provides a complete range of search engine marketing solutions worldwide.

3.14 Summary

Developments of science and technology, generation of creative and innovative ideas and emergence of e-consultants have contributed significantly for the growth and development of E-Marketing. E-Marketing is the process of conducting marketing activities through electronic medium. It saves money and time, develops intimate customer relationships, attracts analytical buyers, removes distance barriers, provides choice and enables collection of data. Buyers differ in their wants, attitudes, purchasing power, age, income, buying practices and geographical locations. This complex and varied behaviours of customers is the cause for market segmentation. Similarly, marketing mix decisions play a vital role in implementing effective marketing management. The four elements of mix constitute successful marketing activities. Business organizations send e-mail messages to people who have requested information about a product. This is called opt-in-mail strategy. Advertising through the internet is called E-Advertising. An overview of various types of E-Advertising is also provided for a better understanding. An account of E-Branding, a process of positioning the product through electronic media, is also provided.

3.15 Key Terms

E-Marketing: It is the process of considering marketing activities and achieving marketing objectives through electronic medium.

Traditional marketing: It is labelled traditional, because it incorporates the original methods of marketing and advertising through 4 basic ways; print, broadcast, direct mail and telephone.

Telebanking: A customer is given a password number (known as T-PIN i.e., Telephonic personal identification number) through which he can have access to his/her account over telephone/mobile phone and give instruction regarding withdrawal, issue of demand draft etc.

Internet Banking: The customer can access his account through internet from anywhere, any time and any number of times. The customer simply uses a password number and gets the details of transactions sitting at home.

ATM: ATM, the acronym for Automated Teller Machine. ATM is a computerized machine used for most of the routine jobs of a bank. By inserting the ATM card in the machine and entering the PIN (Personal Identification Number) the customer can use it for withdrawals and deposits of money.

Debit Card: A debit card is an electronic card that can be used conveniently while making payments. This card is issued to the customers of the bank having current or savings deposit account. It can also be used at ATMs just like ATM cards.

Credit Card: The cards are issued to individuals after verifying their credit worthiness. The individual can use those cards at various outlets to make payments. The issuing bank fixes a credit limit up to which the cardholder can purchase goods and services. The bank issues a statement of transactions periodically and the individuals have to pay back the amount to the bank by a due date. The cardholder can also use his/her card to withdraw cash from ATMs.

E-Ticketing: Purchasing tickets through internet sitting at home or even while on the move. Make payment through credit cards/debit cards for on-line booking of tickets. The e-Ticketing service is also available through mobile phones.

E-Advertising: E- Advertising or Online advertising or Internet advertising is a marketing strategy that involves the use of the Internet as a medium to obtain website traffic and target and deliver marketing messages to the right customers.

E-Trading: On line trading has started with the establishment of OTCEI. Now the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) have also completely switched over to online trading to which most stock-brokers have access through internet.

E-Post: E-Post facility is introduced in India by the Department of Posts. It enables people to send and receive e-mail at the post offices. E-Post is a service under which printed or even

handwritten messages are transmitted as email on internet. At the destination post offices, these messages are printed, enveloped and delivered through the postman like other letters. The customer can make payment through a prepaid card that is available in the head post office and other outlets. The customer has to register as a user and access the service at the e-Post portal http://indiapost.nic.in.

Display advertising: It conveys its advertising message visually using text, logos, animations, videos, photographs, or other graphics.

Behavioural targeting: As advertisers collect data across multiple external websites about a user's online activity; they can create a detailed picture of the user's interests to deliver even more targeted advertising. This aggregation of data is called Behavioural targeting.

Geo-targeting: Advertisers may also deliver ads based on a user's suspected geography through geo-targeting.

Web banner advertising: Web banner ads typically are graphical ads displayed within a web page.

Pop-up: A pop-up ad is displayed in a new web browser window that opens above a website visitor's initial browser window. A pop-under ad opens a new browser window under a website visitor's initial browser window.

Search Engine Marketing (SEM): It is designed to increase a website's visibility in search engine results pages (SERPs). Search engines provide sponsored results and organic (non-sponsored) results based on a web searcher's query.

Search engine optimization (SEO): It attempts to improve a website's organic search rankings in SERPs by increasing the website content's relevance to search terms.

Social Media Marketing: Social media marketing is commercial promotion conducted through social media websites.

Internet branding: It is a technique that uses the World Wide Web as a medium for positioning a brand in the marketplace.

3.16 Self Evaluation Questions

1. What is E-Marketing?
2. What are the advantages of E-Marketing?
3. Write a note on market segmentation
4. Explain in detail about E-Marketing Mix.

5. Explain the E-Marketing strategies.
6. What are the components of E-Marketing Mix?
7. What is E-Mail Marketing?
8. Explain the importance of affiliate marketing strategy.
9. Explain various advertisement methods used on the web
10. What are the objectives of web advertising?
11. What is E-Branding?
12. What is E-Banking?
13. What do you mean by Search Engine Marketing?
14. What do you understand by Search Engine Optimization?
15. What is Social Media Marketing?

UNIT- IV

E- Payment Systems

LEARNING OBJECTIVES

After reading this unit, you would be able to

- Understand the concept of E-Payment system
- Know about various types of E-Payments
- Learn the process of E=Payment system

CONTENTS

4.1 INTRODUCTION

The ease of purchasing and selling products over the Internet has helped the growth of electronic commerce and electronic payments services are a convenient and efficient way to do financial transactions. Generally we think of electronic payments as referring to online transactions on the internet, there are actually many forms of electronic payments. As technology developing, the range of devices and processes to transact electronically continues to increase while the percentage of cash and cheque transactions continues to decrease.

The Internet has the potential to become the most active trade intermediary within a decade. Also, Internet shopping may revolutionize retailing by allowing consumers to sit in their homes and buy an enormous variety of products and services from all over the worlds. Many

businesses and consumers are still wary of conducting extensive business electronically. However, almost everyone will use the form of E Commerce in near future.

An electronic payment system is needed for compensation for information, goods and services provided through the Internet - such as access to copyrighted materials, database searches or consumption of system resources - or as a convenient form of payment for external goods and services - such as merchandise and services provided outside the Internet. it helps to automate sales activities, extends the potential number of customers and may reduce the amount of paperwork.

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

E payment is a subset of an e-commerce transaction to include electronic payment for buying and selling goods or services offered through the Internet.

Risks in Electronic Payment systems

Customer's risks

- Stolen credentials or password
- Dishonest merchant
- Disputes over transaction
- Inappropriate use of transaction details

Merchant's risk

- Forged or copied instruments
- Disputed charges
- Insufficient funds in customer's account
- Unauthorized redistribution of purchased items

Electronic payments Issues

- Secure transfer across internet
- High reliability: no single failure point

- Atomic transactions
- Anonymity of buyer
- Economic and computational efficiency: allow micropayments
- Flexibility: across different methods
- Scalability in number of servers and users

Designing Electronic Payment systems

It includes several factors:

Privacy: A user expects to trust in a secure system; just as a telephone is a safe

Security: A secure system verifies the identity of two-party transactions through "user authentication" & reserves flexibility to restrict information/services through access control

Intuitive interfaces: The payment interface must be as easy to use as a telephone.

Database integration: With home banking, for ex, a customer wants to play with all his accounts.

Brokers: A "network banker"-someone to broker goods & services, settle conflicts, & financial transactions electronically-must be in place

Pricing: One fundamental issue is how to price payment system services. For e.g., from cash to bank payments, from paper-based to e-cash. The problem is potential waste of resources.

4.2 TYPES OF E-PAYMENT SYSTEMS

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

Banking and financial payments

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

Retailing payments

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

On-line electronic commerce payments

1. Token-based payment systems

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

2. Credit card-based payments systems

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

Electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing paper work, transaction costs, labour cost. Being user friendly and less time consuming than manual processing, it helps business organization to expand its market reach / expansion. Some of the modes of electronic payments are following.

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

4.2.1 Cards

Credit cards, debit cards and prepaid cards currently represent the most common form of electronic payments. For all 3 types of cards the consumer or the business uses a plastic card, commonly with a magnetic stripe..Along with magnetic stripe cards, smart cards are also used for payments. Smart cards are at present overwhelmingly plastic credit cards with an embedded computer chip.

Credit Card: Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When

a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder - Customer
- The merchant - seller of product who can accept credit card payments.
- The card issuer bank - card holder's bank
- The acquirer bank - the merchant's bank
- The card brand - for example, visa or mastercard.

Debit Card

Debit card, like credit card is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between debit card and credit card is that in case of payment through debit card, amount gets deducted from card's bank account immediately and there should be sufficient balance in bank account for the transaction to get completed, whereas in case of credit card there is no such compulsion.

Smart Card

Smart card is again similar to credit card and debit card in appearance but it has a small microprocessor chip embedded in it. It has the capacity to store customer work related/personal information. Smart card is also used to store money which is reduced as per usage. Smart card can be accessed only using a PIN of customer. Smart cards are secure as they stores information in encrypted format and are less expensive/provide faster processing. Mondex and Visa Cash cards are examples of smart cards.

4.2.2 E-Money

E-Money transactions refer to situation where payment is done over the network and amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient and save a lot of time. Online payments done via credit card, debit card or smart card are examples of e-money

transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant both have to sign up with the bank or company issuing e-cash.

4.2.3 Electronic Fund Transfer

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in same bank or different bank. Fund transfer can be done using ATM (Automated Teller Machine) or using computer. Now-a-days, internet based EFT is getting popularity. In this case, customer uses website provided by the bank. Customer logins to the bank's website and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers amount to other account if it is in same bank otherwise transfer request is forwarded to ACH (Automated Clearing House) to transfer amount to other account and amount is deducted from customer's account. Once amount is transferred to other account, customer is notified of the fund transfer by the bank.

4.2.4 Internet

Online payments involve the customer transferring money or making a purchase online via the internet. Consumers and businesses can transfer money to third parties from the bank or other account, and they can also use credit, debit and prepaid cards to make purchases online. Current estimates are that over 80% of payments for online purchases are made using a credit card or debit card. At present, most online transactions involve payment with a credit card. While other forms of payment such as direct debits to accounts or pre-paid accounts and cards are increasing, they currently represent a less developed transaction methodology.

4.2.5 Mobile Payments

Mobile phones are currently used for a limited number of electronic transactions. However, the percentage seems likely to increase as mobile phone manufacturers enable the chip and software in the phone for easier electronic commerce. Consumers can use their mobile phone to pay for transactions in several ways. Consumers may send an SMS message, transmit a PIN number and use WAP to make online payments, or perform other segments of their transaction with the phone. As phones develop further, consumers are likely to be able to use infrared, Bluetooth and other means more frequently to transmit full account data in order to make payments securely and easily from their phone. Additionally, merchants can obtain an authorization for a credit or debit card transaction by attaching a device to their mobile phone. A consortium in the US also announced PowerSwipe, for example, which physically connects to a

Nextel phone, weighs 3.1 ounces, and incorporates a magnetic stripe reader, infrared printing port and pass-through connector for charging the handset battery.

4.2.6 Financial Service Kiosks

Companies and service providers in several countries, including Singapore and the US, have set up kiosks to enable financial and non-financial transactions. These kiosks are fixed stations with phone connections where the customer usually uses a keyboard and television-like screen to transaction or to access information. Kiosks in the United States enable the customer to send money via wire transfers, cash cheques, make purchases using cash, and make phone calls. Located at convenient public locations such as bus or subway stations, convenience stores or shopping malls, these kiosks enable electronic payments by individuals who may not have regular access to the internet or mobile phones.

4.2.7 Television Set-Top Boxes and Satellite Receiver

Specialized boxes attached to a television can also be used for payments in some locations. The set-top box attaches to the television and a keyboard or other device, and customers can make purchases by viewing items on the television. Payment is made electronically using a credit card or other account. While usage is presently low, it could grow substantially in countries with a strong cable or satellite television network.

4.2.8 Biometric Payments

Electronic payments using biometrics are still largely in their infancy. Trials are underway in the United States, Australia and a limited number of other countries. Most biometric payments involve using fingerprints as the identification and access tool, though companies like Visa International are piloting voice recognition technology and retina scans are also under consideration. Essentially, a biometric identifier such as a fingerprint or voice could replace the plastic card and more securely identifies the person undertaking the transaction. The electronic payment is still charged to a credit card or other account, with the biometric identifier replacing the card, cheque or other transaction mechanism.

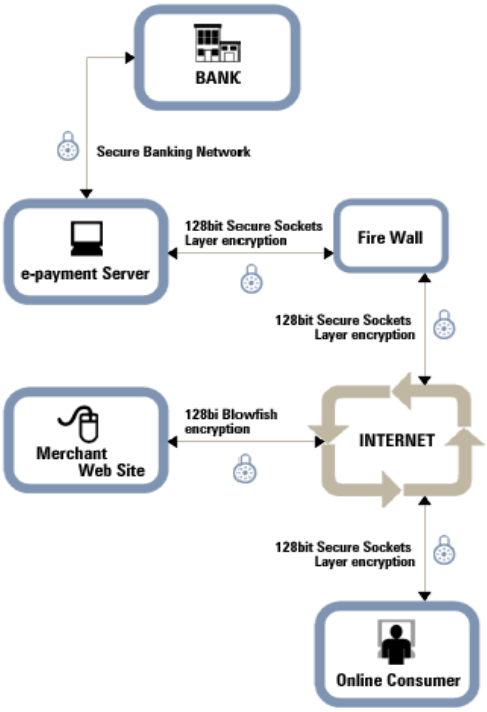
4.2.9 Electronic Payments Networks

Various countries have electronic payments networks that consumer can use to make payments electronically. ACH (Automated Clearing House) in the US, domestic EFTPOS

networks in Australia and Singapore, and other networks enable electronic payments between businesses and between individuals. The consumer can go online, to a financial service kiosk or use other front-end devices to access their account and make payments to businesses or other individuals.

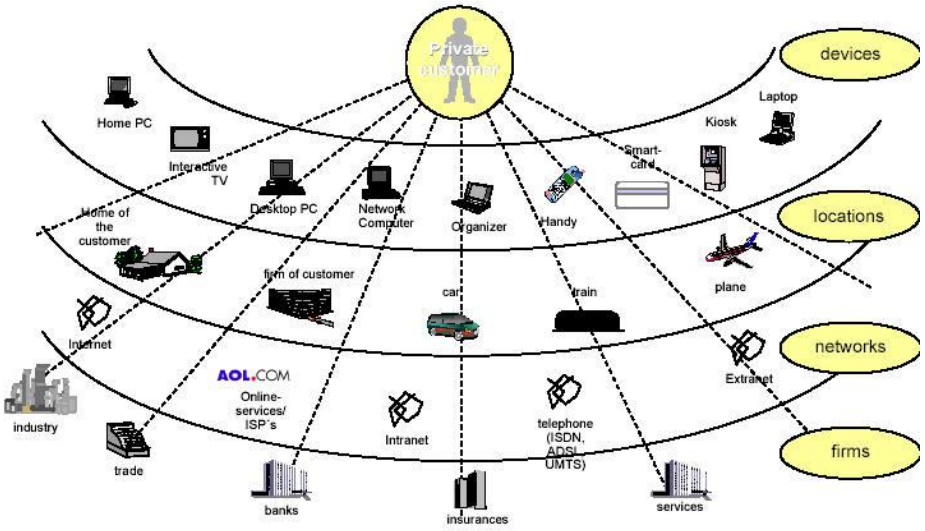
4.2.10 Person-to-Person (P2P) Payments

P2P payments enable one individual to pay another using an account, a prepaid card or another mechanism that stores value. PayPal in the US, which was recently purchased by Ebay, is one of the most frequently used P2P mechanisms. P2P payments can be made through a variety of means, including services like PayPal, transfers using card readers, or other. In the future other devices, such as mobile phones or PDAs, could also be used to enable P2P electronic payments.



Source www.epayment.com

Types of E-payment and Initiatives



4.3 REQUIREMENTS FOR E-PAYMENTS

For making e-payments effective and successful the following requirements are essentials:

Critical mass

The success of a payment scheme depends on the number of users, both as regards merchants and consumers, as financial institutions. Especially merchants play a crucial role in the development of payment schemes, as their acceptance of e-payment systems creates the market for such schemes. Providers face the so-called "chicken and egg" problem, as merchant acceptance equally depends on customer acceptance.

Adoption at the EU-level

In order to foster cross-border payments in the Internal Market, it is essential that payment schemes are developed that apply across the EU. Merely national payment schemes will not increase cross-border e-shopping, because foreign customers cannot pay abroad with these

national schemes. Payment schemes that are limited to the national level, should at least try to enter into cross-national associations to gain customer and merchant recognition.

Limited costs

The cost of using an electronic payment system should be limited to a minimum, so as to increase merchant and customer acceptance. This particularly holds true for low-value transactions, which must be facilitated by low transaction costs. (For example, the online purchase of a ringtone of 1 EUR should not result in the need to pay an additional 0,40 EUR for transaction costs.)

User friendly / low effort

Electronic payment systems should be user-friendly and should allow users to personalise the system to integrate their everyday activities and personal financials. Simplicity is key to gaining wide acceptance, especially to persuade new Internet users who lack both experience and confidence to cope with complicated protocols. In Japan, for example, most electronic payment systems only require the user to enter a unique set of 16 digits for authentication and payment finalisation purposes.

Speed

Electronic payment systems should be able to process transactions very rapidly. Their speed allows them to be differentiated from other (offline) payment schemes such as credit cards, which are often subject to transaction terms of several days. Settlement of transactions in real time allows customers to be informed of their available funds at any moment.

Security

Fraudulent payment card transactions represent losses of roughly 1 billion EUR per year in the SEPA area. Moreover, given their virtual nature, e-payment schemes do not allow to see the money physically represented, which often results in the feeling of having no control. It is therefore essential that e-payment systems provide a sufficient level of security, both on a technological level as on a psychological level.

Balance of interests

The current financial crisis has demonstrated the importance of controlling financial institutions. Payment instruments which transfer substantial amounts of money, should be strictly regulated, regardless of the fact whether they constitute online or offline payment systems. However, there also is a need for balance. Strict compliance requirements could cripple the

further development of e-payment systems, particularly if small money transfer would also be subject to such requirements. Hence, a balance between innovation incentives and the protection of consumers is required.

Protection of privacy

As is possible with cash payments, consumers will want to have at least the option of remaining anonymous in relation to e-payments. Moreover, the possibilities of profiling based on financial transaction data should be limited. For example, the use of transaction-related data outside the initial business context, of the sale of such data to third parties could lead to customer discrimination. Such practices should therefore be contained by legal privacy provisions.

Transparency

Electronic payment schemes must be transparent to consumers, in particular with respect to their personal financial data being handled by both merchants and financial institutions. Transparency requires merchants and financial institutions to describe the way in which an electronic payment system works, and how they intend to process any transactions requested by consumers.

Predictability

For adapted legal rules to be effective, it is required that e-payment systems are generally intelligible, clear and predictable to all actors involved. Any laws applicable to e-payment systems must therefore clearly establish which services do and which do not fall within their scope.

Trust

Both the electronic payment schemes themselves and the applicable legal framework must present a trustworthy system. Customers and merchants will refrain from using such payment schemes if the applicable laws cannot guarantee the protection of their interests. Equally important is the need to address the issue of perceived trust: the public must be convinced that cyber-cash is unforgettable.

Reliability

The legal framework applicable to electronic payments must be consistent in its effects on all participants. In case of a dispute, the application of such laws should be predictable, and the expected outcome of the dispute should be reliable

4.4 DIGITAL TOKEN BASED PAYMENT SYSTEM

The digital token based payment system is a new form of electronic payment system which is based on electronic tokens rather than e-cheque or e-cash. The electronic tokens are generated by the bank or some financial institutions. Hence we can say that the electronic tokens are equivalent to the cash which are to be made by the bank.

Electronic tokens are three types:

1. Cash or Real-time

In this mode of electronic tokens transactions takes place via the exchange of electronic currency (e-cash). Example: on-line currency exchange is electronic cash (e-cash).

2. Debit or Prepaid

In this electronic payment system the prepaid facilities are provided. It means that for transactions of information user pay in advance. This technology is used in smart card, electronic purses etc. Example: prepaid payment mechanisms are stored in smart cards and electronic purses that store electronic money.

3. Credit or Post-paid

These types of electronic token based on the identity of customers which issue a card, their authentication and verification by a third party. In this system the server authenticates the customers and then verifies their identity through the bank. After all these process the transaction takes place. Example is E-Cheques. Example: post-paid mechanisms are *credit/debit cards* and *electronic cheques*.

The Digital Token based system has following issues:

1. Nature of transaction for which instrument is designed:

In this category, the design issues of token take place. It may be designed to handle micro payments. It may be designed for conventional products. Some tokens are designed specifically and other generally. The design issue involve involvement of parties, purchase interaction and average amount.

2. Means of Settlement:

The Digital Tokens are used when their format must be in cash, credit, electronic bill payments etc. Most transaction settlement methods use credit cards while other used proxies for values.

3. Approach to Security, Anonymity and Authentication:

Since the electronic token are vary from system to system when the business transaction take place. So it is necessary to secure it by intruders and hackers. For this purpose various security features are provided with electronic tokens such as the method of encryption. The encryption method uses the digital signatures of the customers for verification and authentication.

4. Risk Factors:

The electronic tokens may be worthless and if the customer have currency on token than nobody will accept it, if the transaction has long time between delivery of products and payments to merchants then merchant exposes to the risk. so it is important to analysis risk factor in electronic payment system.

Benefits of Utilizing an Electronic Payment System:

Many large global organizations are reaping the benefits from employing an electronic payment system, which include:

1. Day Sales Outstanding (DSO) Improvements:

For suppliers, an electronic payment system can immediately improve DSO numbers by allowing them to electronically receive and process payments from commercial customers.

2. Processing Cost Reduction:

A feature-rich electronic payment system lowers associate process time by automatically initiating and processing payments.

3. Minimize Overdue Payments:

A best-in-class electronic payment system accelerates credit and collections by giving customers, collections groups and internal customer service departments greater visibility into payment status.

4. Simplify Dispute Management:

With an electronic payment system, companies enjoy improved data accuracy and automated disbursement, receipt and payment processing to streamline vendor dispute management.

5. Increased Compliance:

An electronic payment system makes it easier to track and monitor data to ensure adherence to complex compliance regulations and all business rules.

6. Enhanced Security:

An electronic payment system is highly secure, safeguarding cardholder data and preventing payment fraud better than paper-based payments can achieve.

7. Improved Workflow Efficiencies:

Increased automation is a key feature of a robust electronic payment system, enabling less reliance on time-consuming and costly manual business processes.

8. Greater Visibility into Financial Supply Chain:

With access to reports and comprehensive corporate financial history, an electronic payment system gives management and other authorized users easy access to snapshots and detailed reports to improve decision-making and process efficiency.

4.5 CREDIT CARDS AS E-PAYMENT SYSTEM

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

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

Advantages:

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

Disadvantages:

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

Payment Acceptance and Processing

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

Types of Credit Cards

There are two types of credit cards on the market today-

Credit cards are issued based on the customer's income level, credit history, and total wealth. The customer uses these cards to buy goods and services or get cash from the participating financial institutions. The customer is supposed to pay his or her debts during the payment period; otherwise interest will accumulate. Two limitations of credit cards are their unsuitability for very small or very large payments. It is not cost-justified to use a credit card for small payments. Also, due to security issues, these cards have a limit and cannot be used for excessively large transactions. There are two types of credit cards on the market today:

1. Credit cards issued by credit card companies (e.g., MasterCard, Visa) and major banks (e.g. Is Bankasi, Ziraat Bankasi, Yapi Kredi, etc.)
2. Credit cards issued by department stores (e.g Boyner), oil companies (e.g. Shell) Businesses extremely benefit from these company cards and they are cheaper to operate. They are widely issued to and used by a broad range of customers. Businesses offer incentives to attract customers to open an account and get one of these cards.

Credit card payment process:

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

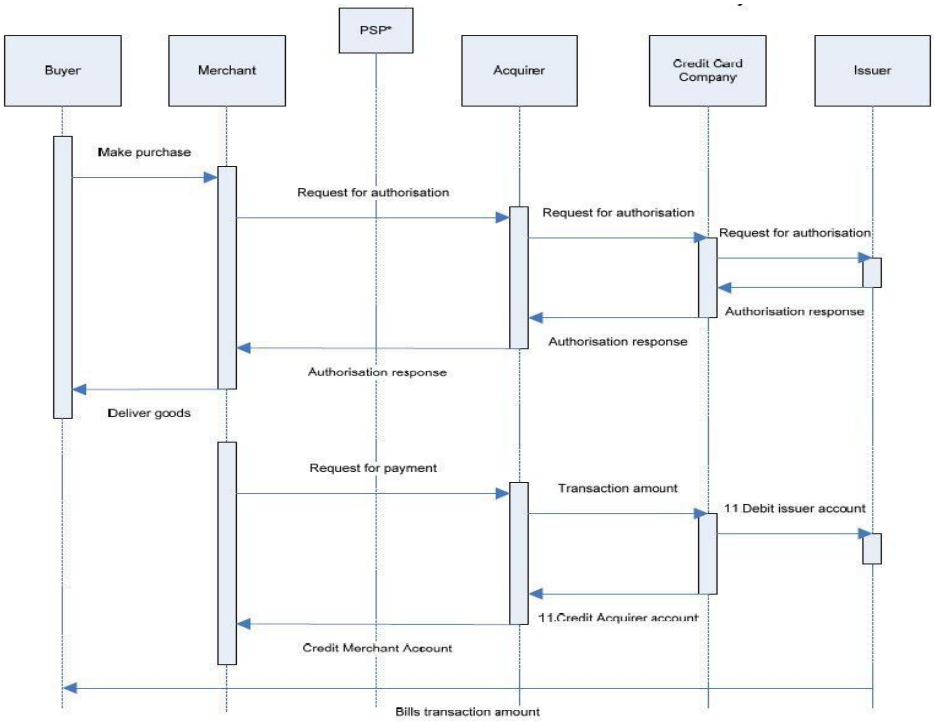
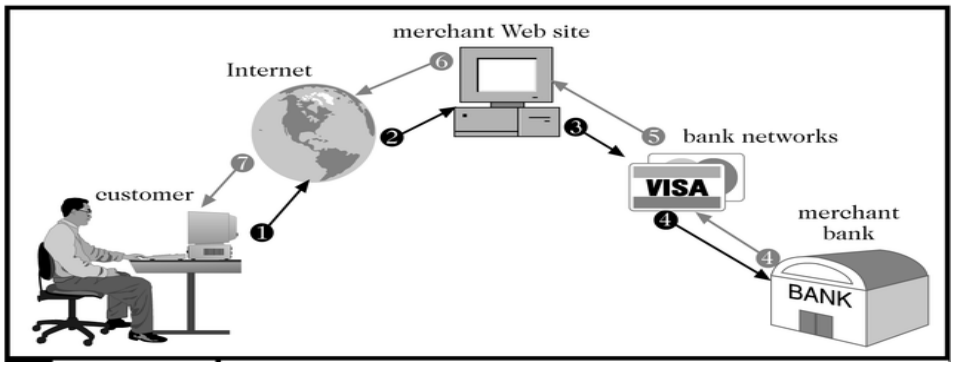


Figure: Online Credit Card (VISA) Transaction Process

Processing a Payment Card Order



4.6 SMART CARD CASH PAYMENT SYSTEM

Smart Cards based Electronic Payment System "Smart cards" are receiving renewed attention as a mode of online payment. They are essentially credit card sized plastic cards with the memory chips and in some cases, with microprocessors embedded in them so as to serve as storage devices for much greater information than credit cards with inbuilt transaction processing capability.

This card also contains some kinds of an encrypted key that is compared to a secret key contained on the user's processor. Some smart cards have provision to allow users to enter a personal identification number (PIN) code. Smart cards have been in use for well over the two decades now and have been widespread mostly in Europe and Asian Countries. Owing to their considerable flexibility, they have been used for a wide range of functions like highway toll payment, as prepaid telephone cards and as stored value debit cards. However, with the recent emergence of e-commerce, these devices are increasingly being viewed as a particularly appropriate method to execute online payment system with considerably greater level of security than credit cards. Compared with traditional electronic cash system, smart cards based electronic payment systems do not need to maintain a large real time database. They also have advantages, such as anonymity, transfer payment between individual parties, and low transactional handling cost of files. Smart cards are also better protected from misuse than, say conventional credit cards, because the smart card information is encrypted. Currently, the two smart cards based electronic payment system- Mondex and Visa Cash are incompatible in the smart cards and card reader specification.

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

A smart card is about the size of a credit card, made of a plastic with an embedded microprocessor chip that holds important financial and personal information. The microprocessor chip is loaded with the relevant information and periodically recharged. In addition to these pieces of information, systems have been developed to store cash onto the chip. The money on

the card is saved in an encrypted form and is protected by a password to ensure the security of the smart card solution. In order to pay via smart card it is necessary to introduce the card into a hardware terminal. The device requires a special key from the issuing bank to start a money transfer in either direction.

Smart cards can be disposable or rechargeable. A popular example of a disposable smart card is the one issued by telephone companies. After using the pre-specified amount, the card can be discarded. Smart-card technology can be used to hold information on health care, transportation, identification, retail, loyalty programs and banking, to name a few.

Kalakota and Whinston (1996), classified smart cards based electronic payment system as (1) relationship based smart cards and (2) electronic purses. Electronic purses, which may replace money, are also known as debit cards.

Relationship-Based Smart Credit Cards

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

Electronic Purses

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

The electronic purse works in the following manner:

1. After purse is loaded with money at an ATM, it can be used to pay for candy in a vending machine with a card reader.
2. It verifies card is authentic & it has enough money, the value is deducted from balance on the card & added to an e-cash & remaining balance is displayed by the vending machine.

Further Diwan and Singh (2000) and Sharma and Diwan (2000), classified 38 smart cards into four categories. These are: (1) memory cards: this card can be used to store password or pin number. Many telephone cards use these memory cards (2) shared key cards: it can store a private key such as those used in the public key cryptosystems. In this way, the user can plug in

the card to a workstation and workstation can read the private key for encryption or decryption (3) signature carrying card: this card contains a set of pre-generated random numbers. These numbers can be used to generate electronic cash (4) signature carrying cards: these cards carry a co-processor that can be used to generate large random numbers. These random numbers can then be used for the assignment as serial numbers for the electronic cash.

Smart cards are broadly classified into two groups:

Contact: This type of smart card must be inserted into a special card reader to be read and updated. A contact smart card contains a microprocessor chip that makes contact with electrical connectors to transfer the data.

Contact-less: This type of smart card can be read from a short distance using radio frequency. A contact-less smart card also contains a microprocessor chip and an antenna that allows data to be transmitted to a special card reader without any physical contact. This type of smart card is useful for people who are moving in vehicles or on foot. They are used extensively in European countries for collecting payment for highway tolls, train fares, parking, bus fares, and admission fees to movies, theatres, plays, and so forth.

Some of the advantages of smart cards include the following:

1. Stored many types of information • Not easily duplicated
2. Not occupy much space
3. Portable
4. Low cost to issuers and users
5. Included high security

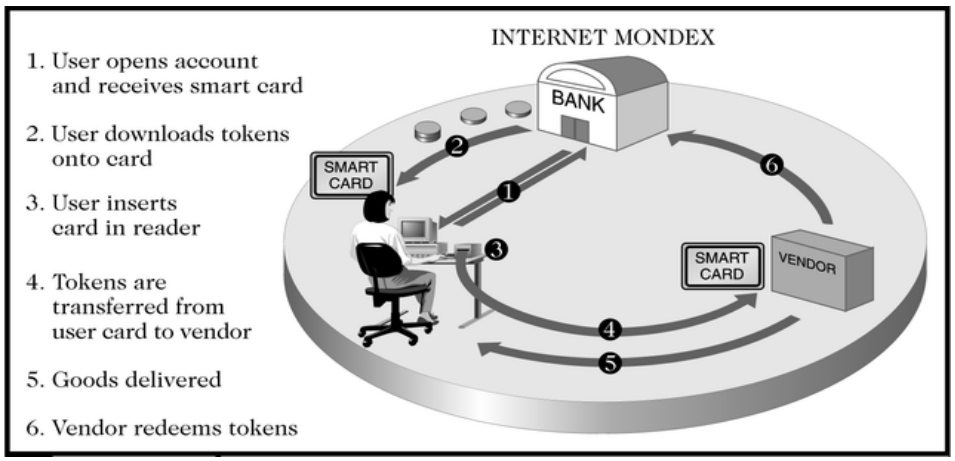
Disadvantages:

1. Low maximum transaction limit (not suitable for B2B or most B2C)
2. High Infrastructure costs (not suitable for C2C)
3. Not (yet) widely used
4. Lack of universal standards for their design and utilization.

Smart Card Applications

- Ticketless travel
  - Seoul bus system: 4M cards, 1B transactions since 1996
  - Planned the SF Bay Area system

- Authentication, ID
- Medical records
- E-cash
- Personal profiles
- Government
  - Licenses
- Mall parking



4.7 MİCRO-PAYMENT SYSTEM

A micropayment is an e-commerce transaction-type with a low financial amount. Micropayments are typically used to purchase online products and services such as e-books, music and memberships.

A Micropayment is a financial transaction involving a very small sum of money, and usually one that occurs online. Micropayments were initially devised as a way of allowing the sale of online content as a way to pay for very low cost network services. Micropayments were envisioned to involve small fractions of a currency. Micropayments would enable people to sell content on the Internet, and this would be an alternative to advertising revenue.

The term “micropayment” can be defined as a small sum of payment ranging from a couple of dollars to a fraction of a cent in exchange for intellectual property or web-based content. Micro-payments are becoming a popular form of payment in the e-commerce sales sector. Many companies are providing their clients the option to pay for inexpensive transactions through financial firms such as Paypal, Visa, Mastercard, etc. Each company has its own maximum amount of money used in a micropayment transaction, for example for Paypal it is less than $12 USD, and for Visa it is less than $20 USD.

“Micropayment system” is the name given to the online payments system, enabling people to charge relatively small amounts of money for their online content or services. These systems were developed during the 1990’s, however they are not efficiently implemented. Back then, there are only a few websites that accept micropayments and implements this kind of system. As the era changes, the term micropayment is commonly used to refer to the sale of virtual goods.

Many consumers have the preference to pay these small sums of money online, as it is timesaving and more convenient. Mobile technologies such as tablets running on the Android or iPad system are also advancing rapidly and are incorporating applications from their app stores to support micro-payments. Examples would include the eBay, Amazon, and Paypal applications which allow users to make purchases online. EBay gives you the option to pay via Visa, Mastercard, and Paypal. This new form of technology will change how we value money and consider our purchases. This new convenience will accelerate our use of e-commerce and add higher benefits to the end user by saving transportation costs

The key benefit to this process is the payment provider's ability to serve as a single secure payment contact for sellers and buyers. Sellers can provide multiple websites and/or products without the overhead of a merchant account, and buyers can pay many different sellers under one secure transaction umbrella. Easy and secure adaptability is at the core of e-commerce growth at the micro level.

How does this work?

With a *prepaid system*, cash, cheque, or credit payment is made to the online company sponsoring the micropayment system; *your online account is then credited with a commensurate sum*. You may then purchase goods or services online using this account. Often the purchases are

digital in nature, and include, artwork, photos, images, audio, and video clips, privileges, perks, virtual goods, and titles.

When you first setup your account, your contractual agreement, sensitive financial, and personal account information, is transferred to the company you wish to do business with via an encrypted link.

At the time you are setting up your account, your account information is scrambled using a cipher code uniquely designed to protect that information and that information is then transmitted encoded to the online company that is sponsoring the micropayment system... There, your sensitive financial information is decoded, and your account is setup. *That is the way micropayment accounts are supposed to work.*

Once your account is setup, *you may then make micropayments at any time, simply by selecting an item or payment option, and confirming your choice.* This also usually occurs in a secured online environment setup by the company sponsoring the micropayment system, and often involves the purchaser verifying his or her identity prior to the purchase using a password, access code, or a digital or physical key of some sort.

Advantages and Disadvantages of Micro Payment system:

Advantages:

1. Anonymity

Setting up an online account with a micropayment service provider allows one to conduct financial transactions online with some anonymity.

2. Speed

Micropayment accounts allow for quick and convenient purchase of real and virtual goods and services.

3. Scalability

Micropayment systems can grow easily to accommodate additional trades, and new products, or services.

4. Security

Fewer online transfers of actual payment leads to fewer opportunities for actual theft or abuse. It is much easier to contain the scope of theft or abuse using a micropayment system.

Disadvantages:

1. Insecure Data

If sensitive account information is compromised, the account holder is left vulnerable to more than just the losses from the investment in the account, often secondary or tertiary accounts may be compromised as a result.

2. Dishonesty

Account holders may lose their investment in the micropayment system if the payment processing company is dishonest, or otherwise deceptive.

3. Excessive, Taxes, Fees, and Charges

Individual transactions end up costing the buyer more over the long term as individual taxes, fees, and charges, when combined and compared with a single larger purchase, reveal that the purchases actually cost more than if a single large purchase was made.

4. Excessive Maintenance Costs

With the explosion in the sheer number of micro transactions, actually auditing or reviewing such transactions quickly becomes extraordinarily expensive. Proportionally the number of customer disputes over failed or undesired individual purchases increase as well.

In the next years the market for low value products such as online music and videos and the role of micropayment systems for selling such products are expected to grow substantially.

4.8 Electronic Cash

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

Electronic cash (also called e-cash or digital cash) is any value storage and exchange system created by a private (non-governmental) entity that does not use paper documents or coins and that can serve as a substitute for government-issued physical currency. Since e-cash is issued by many private companies, we need common standards for all e-cash issuers so that they are accepted by each other. Until now those common standards were not met. Every issuer has its own standards and e-cash is not universally accepted compared to government-issued physical currency.

Electronic Cash (E-Cash) or electronic money are playing more significant role in our daily life due to the rise of internet usage. Most of the money form today is in electronic. However with new invention of tool doesn't mean that it will bring all positive results as nothing is perfect in this world.

Concerns about electronic payment methods include privacy and security, independence, portability, and convenience. Privacy and security issues are probably the most important issues.

E-cash has its unique security problems. E-cash must have two important characteristics in common with physical currency. It must be spent only once and it must be anonymous.

E-cash is independent and portable. E-cash is independent, if it is not related to any network or storage device. It is portable, if it can be freely transferable between any two parties. Credit and debit cards are not portable. In a credit card transaction, the credit card recipient must have an account established with a bank unlike the case in e-cash.

The most important characteristic of cash is convenience. If e-cash requires special hardware or software, it will not be convenient for people to use.

Properties of Electronic Cash:

There are many ways that exist for implementing an e-cash system, all must incorporate a few common features.

Features of E-Cash

1. Consumer buys e-cash from Bank
2. Bank sends e-cash bits to consumer (after charging that amount plus fee)
3. Consumer sends e-cash to merchant
4. Merchant checks with Bank that e-cash is valid (check for forgery or fraud)
5. Bank verifies that e-cash is valid
6. Parties complete transaction: e.g., merchant present e-cash to issuing back for deposit once goods or services are delivered

Specifically, e-cash must have the following four **properties**:

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

Electronic Cash in Action

• Electronic Cash is based on cryptographic systems called “digital signatures”.

• This method involves a pair of numeric keys: one for locking (encoding) and the other for unlocking (decoding). (Through public key and private key)

Purchasing E-cash from Currency Servers

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

• Establishment of an account and

• Maintaining enough money in the account to bank the purchase.

Some customers might prefer to purchase e-cash with paper currency, either to maintain anonymity or because they don't have a bank account.

Using the Digital Currency

• Once the tokens are purchased, the e-cash software on the customer's PC stores digital money undersigned by a bank.

• The users can spend the digital money at any shop accepting e-cash, without having to open an account there or having to transmit credit card numbers.

• As soon as the customer wants to make a payment, the software collects the necessary amount from the stored tokens.

Electronic Cheques

• It is another form of electronic token.

• Buyers must register with third-party account server before they are able to write electronic cheques

• The account server acts as a billing service.

Electronic Cash Storage

There are two methods of e-cash storage system. They are;

- On-line
  - Individual does not have possession personally of electronic cash
  - Trusted third party, e.g. e-banking, bank holds customers' cash accounts
- Off-line
  - Customer holds cash on smart card or electronic wallet
  - Fraud and double spending require tamper-proof encryption

How a typical e-cash system works:

Similar to regular cash, e-cash enables transactions between customers without the need for banks or other third parties. When used, e-cash is transferred directly and immediately to the participating merchants and vending machines. Electronic cash is a secure and convenient alternative to bills and coins. This payment system complements credit, debit, and charge cards

and adds additional convenience and control to everyday customer cash transactions. E-cash usually operates on a smart card, which includes an embedded microprocessor chip.

A customer or merchant signs up with one of the participating banks or financial institutions. The customer receives specific software to install on his or her computer. The software allows the customer to download “electronic coins” to his or her desktop. The software manages the electronic coins. The initial purchase of coins is charged against the customer's bank account or against a credit card. When buying goods or services from a web site that accepts e-cash, the customer simply clicks the “Pay with e-cash” button. The merchant's software generates a payment request, describing the item(s) purchased, price, and the time and date. The customer can then accept or reject this request. When the customer accepts the payment request, the software residing on the customer's desktop subtracts the payment amount from the balance and creates a payment that is sent to the bank or the financial institution of the merchant, and then is deposited to the merchant's account. The attractive feature of the entire process is its turnaround time which is a few seconds. The merchant is notified and in turn ships the goods.

Advantages and Disadvantages - Electronic Cash

Advantages:

We can transfer funds, purchase stocks, and offer a variety of other services without having to handle physical cash or cheques as long as bank is providing such services online. The significant effect is we do not have to queue in lines, thus saving our time.

Debit cards and online bill payments allow immediate transfer of funds from an individual's personal account to a business's account regardless the designated place (around the globe) by few clicks without any actual paper transfer of money. This bring convenience individual like us and businessmen.

Consumers will have greater privacy when shopping on the Internet using electronic money instead of ordinary credit cards.

- More efficient, eventually meaning lower prices
- Lower transaction costs
- Anybody can use it, unlike credit cards, and does not require special authorization
- Electronic cash transactions are more efficient and less costly than other methods.
- The distance that an electronic transaction must travel does not affect cost.
- The fixed cost of hardware to handle electronic cash is nearly zero.

- Electronic cash does not require that one party have any special authorization.

Disadvantages:

E-cash and E-Cash transaction security are the major concern. Frauds on E-Cash are on the catch recent years. Hackers with good skill able to hack into bank accounts and illegally retrieve of banking records has led to a widespread invasion of privacy and has promoted identity theft. There are many other tricks including through phishing website of certain banks and emails.

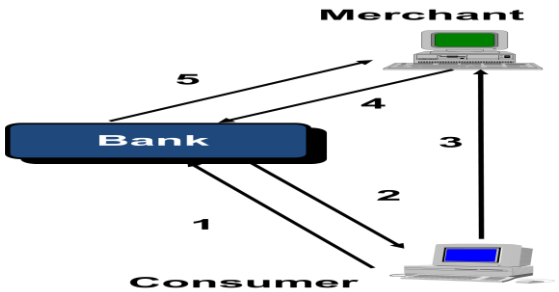
Money flow and criminal/terrorist activities are harder to be traced by government. With the continued growth of E-Cash, money flow in and out of countries at immediate speed without being traced will weaken the government's ability to monitor and income in tax. Money laundering and tax evasion could be uncontrollable in e-cash systems as criminals use untraceable internet transaction to hide assets offshore.

E-Cash is not for everyone. Low income groups without computer and internet access are unable to enjoy the usage of E-Cash. This issue shall be resolved so that E-Cash could be implemented widely.

There is also a pressing issue regarding the technology involved in electronic cash such power failures, internet connection failure, loss of records and undependable software. These often cause a major setback in promoting the technology.

- Susceptible to forgery
- Electronic cash provides no audit trail.
- Because true electronic cash is not traceable, money laundering is a problem.
- Electronic cash is susceptible to forgery.
- So far, electronic cash is a commercial flop.

E-Cash Concept



4.9 Summary

It is evident that electronic payments are very essential for completion of e-commerce transactions. E-Payment is any kind of non-cash payment. It allows transfer of money through internet and other electronic networks. E-payment comprises of different types of electronic payments that are available to carry out e-commerce transactions. Some are card based and others are electronic fund transfers. Therefore, it is essential for all business organizations to know about the operations of e-payment system. This unit provides an overview of different e-payments systems in vogue for the benefit of users.

4.10 Key Terms

E-payment: It is a subset of an e-commerce transaction to include electronic payment for buying and selling goods or services offered through the Internet.

Electronic Fund Transfer (EFT): It is defined as "any transfer of funds initiated through an electronic terminal, telephonic instrument, or computer or magnetic tape so as to order, instruct, or authorize a financial institution.

E-Money: E-Money transactions refer to situation where payment is done over the network and amount gets transferred from one financial body to another financial body without any involvement of a middleman.

Electronic cash: It is any value storage and exchange system created by a private (non-governmental) entity that does not use paper documents or coins and that can serve as a substitute for government-issued physical currency.

Digital token based payment system: It is a new form of electronic payment system which is based on electronic tokens rather than e-cheque or e-cash.

Smart card: It is about the size of a credit card, made of a plastic with an embedded microprocessor chip that holds important financial and personal information.

Micropayment: It is a financial transaction involving a very small sum of money, and usually one that occurs online.

P2P: P2P payments enable one individual to pay another using an account, a prepaid card or another mechanism that stores value.

4.11 Self Evaluation Questions

1. What is meant by e-payment system?
2. State different types of e-payment system.

3. What do you understand by EFT?
4. What is Credit Card?
5. What is Debit Card?
6. What is Smart Card?
7. How does a Credit Card work?
8. How does a Debit Card work?
9. How does a Smart Card work?
10. Write a note on e-money
11. Write a note on mobile payments
12. What is Financial Services Kiosks?
13. What is Automated Clearing House?
14. Explain P2P
15. What is meant by digital token based payment system?
16. Describe Smart Card payment system
17. What is the concept of e-cash?
18. What are the properties of e-cash
19. What are the advantages and disadvantages of e-cash?
20. What are the smart card applications?
21. What is micro payment system?
22. How does micro payment system work?

UNIT – V
E-Finance

Learning Objectives

After studying this unit, the students would be able to understand

- The concept of E-finance
- The concept of E-banking
- The concept of E-trading
- Areas of E-finance
- Operations in E-banking
- Differences between e-banking and traditional banking
- Importance of e-trading

Contents

5.1 Introduction

Finance refers to the use of monetary resources by an organization. The business is evaluated by its financial position. With the emergence of e-commerce, the field of finance has not been untouched by technology. As a result of the use of Internet in the field of financial

activities, the term E-finance came into vogue. It is a key component of E-Commerce. The various components of E-finance are e-banking, e-payment system, e-cash, e-trading, digital currency and IMPS (International Mobile Phone Services)

Electronic financial services, whether delivered online or through other remote mechanisms, have spread quickly in recent years. E-finance penetration varies by type of service. Most affected have been brokerage markets, where online trading is becoming the norm. The spread of online banking services has been more varied across countries. Spurred by the entry of new providers from outside the financial sector many financial service providers are now offering e-finance services.

Electronic communication technologies and the Internet are more important for finance. It will fundamentally transform the financial services industry and financial markets. The net represents the latest in a long line of electronic technologies that have reshaped the financial industry.

E-finance is a new field of Finance and is still in budding stage. It has a greater importance and played a vital role for developing economy like India. The developments can be divided into two broad areas. The first is the impact on banking and financial services. The advent of the internet and other electronic communication has fundamentally altered many aspects of the banking industry. Many of the services traditionally provided by banks are being provided by other entities. The second broad area is the transformation of financial markets. These no longer need to be associated with a physical place. As a result trading systems for equities, bonds and foreign exchange are becoming global. All these changes have important significance for public policy towards the financial services industry and financial markets. They consider the implications for safety and soundness regulation, competition policy, consumer and investor protection and global public policy.

E-finance - including investing, banking, mortgage lending and insurance - will grow at a dazzling rate in the coming years. E-finance will empower both consumers and businesses, enabling them to reduce transaction costs, speedy process of documents online and have instantaneous access to information. For businesses, e-finance can improve efficiency and decrease the costs of internal business functions.

Nowadays, with the emergence of e-commerce, E-finance has become a buzzword among the entrepreneur, business firms and investors. Due to the increasing awareness about the

use of internet and computer technology in commercial purpose, E-finance has emerged as solution to simplify the complexions involved in dealing with finance. It is somewhat the shift of system of financial service from the real world to a virtual one.

5.2 Meaning of E-Finance

The Term 'E-Finance' is used differently by different people. It can be defined as a provisioning of financing instruments to business organisations using electronic tools and technology for the lengthwise process and this incorporates the use of electronic channels for mobilizing e-finance services and electronic methods to set up proper finance conditions and deal with the risk related to the finance itself.

The E-Finance system is designed to allow for paperless submission of a variety of financial documents.

E-finance is defined as the provision of financial services and markets using electronic communication and computation.

E-finance technologies have been deployed in different kinds of financial services firms, depository institutions, insurance companies and securities companies.

E-finance in simple words is use of Internet and technologies in financial services. It has enabled the people to have any financial transactions without any human interaction. It saves time reduces the paper works and chances of fraudulent.

E-finance means the allocation, implementation and treatment of financial resources through Internet.

5.3 Areas of E-finance

E-Commerce is not new. The Nasdaq market involved the electronic trading of stocks as early as 1971. The difference today is that electronic communication and computation is now used much more widely than before. A large number of people have access to the Internet and this has vastly changed the opportunities for the use of electronic payments systems, the operations of financial services firms and financial markets. We have argued that this change raises a number of important research issues. For example, is the widespread use of paper based cheques efficient? Will the financial services industry be fundamentally changed by teh advent of the Internet? Why have there been such large differences in changes to market microstructure across different financial markets/ we look forward to these and other questions being answered as the emerging field of e-finance develops.

The developments of E-finance around the world can be divided into two broad areas, viw.,

1. Banking and financial services, and
2. Financial Markets

5.3.1 Impact on Banking and Financial Services

It is observed that the advent of the Internet and other electronic communication means has fundamentally altered many aspects of the banking industry. Many services traditionally provided by banks are being now provided by other entities. Three important trends in the financial service industry have been accelerated by the emergence of the Internet. These are:

- Improved price transparency,
- Differential pricing and
- Transformation of distribution channels

Improved price transparency increases competition and reduces profit margins. Transaction costs of search remain high that differential pricing is possible and this will become important in financial services industry. Increased use of Internet leads to the unbundling of services and promotes disintermediation, there will be a transformation of distribution channels and an important restructuring of the industry. **E-finance is dramatically changing the structure and nature of financial services**

- E-finance will lead to much lower costs and greater competition in financial services through both new entry from outside financial sector and greater competition among incumbent financial service providers. These developments will force banks to lower fees and commissions because providing e-finance is much cheaper than providing traditional financial services. As a result incumbent financial institutions will likely experience a sharp decline in revenue.
- Internet and related technologies are completely different way of providing financial services. They can also better stratify their customer base and allow consumers to build preference profiles online. The Internet also allows new financial service providers to compete more effectively for customers. All these forces are delivering large benefits to consumers.
- New providers are emerging within and across countries, including online banks, online brokerages and companies. Non-financial entities are also entering the market, including telecommunications and utility companies that offer payment and other services.

Vertically integrated financial service companies are growing rapidly and creating synergies by combining brand names, distribution networks, and financial service production.

- ❖ Trading systems are consolidating and going global. Trading is moving toward electronic platforms not tied to any location. Electronic trading and communication networks have lowered the costs of trading and allow for better price determination.
- ❖ The telecommunications framework should avoid protecting incumbent providers and allow private firms to enhance connectivity using forms ranging from fixed lines to mobile and satellite.
- ❖ Internet transactions require security measures in cases where innovative approaches to public and private partnerships will be necessary.
- ❖ If information is good enough, e-finance will extend the reach of financial institutions and capital markets.
- ❖ With e-finance, contract enforcement has become more important within and across borders, but new technology may also help solve contract enforcement problems.
- ❖ E-finance can increase long-standing risks—such as theft and lack of privacy—as well as create new ones. Thus more emphasis is needed on better disclosure, education, and information.
- ❖ To make financial markets and institutions work better, more emphasis should be placed on competition policy and clear rules for markets.
- ❖ E-finance reduces the need for government intervention because the private sector can provide financial services even when a country's financial sector is weak.

5.3.2 Impact on Financial Markets

The second area is the transformation of the functioning of financial markets. These no longer require associating with a physical place. As a result, trading system of equities, bonds and foreign exchange are becoming global.

- ➢ The development of over the counter market for stocks into the trading system is an example of e-finance in the context of financial markets.
- ➢ Many stock markets around the world adopted electronic trading methods

5.4 Scope of E-Finance

E-finance provides the scope for the following activities:

5.4.1 Financial markets

Financial market refers to the market where financial assets are exchanged by dealers such as stock exchange market. By e-finance facility it has become easier to perform the activities related to financial market through internet technology

5.4.2 Online banking

Online banking or rather e-banking refers to the process of getting connected to the official website of the bank through the internet and performing the task even if the customer is not present in the bank. It enables the user to maintain his financial activities through the e-banking system.

5.4.3 Internet transactions

Internet transaction generally includes e-cash, e-payment, digital currency and ATM. It is a way to transact through the internet without using real currency.

5.4.4 Online trade finance

Trade Finance provides services that resolve payment and delivery issues between buyers and sellers in international trade

5.4.5Credit information and management

5.5 Importance of E-Finance

This is the era where the internet facilities and computer systems are easily available to everyone, affordable and are more powerful, all these facility has made the work easier to us. Many 0f the companies have been using them to build their own virtual network like email (Electronic Mail) which enables the people to end the messages faster, creates the possibilities to expand and promote their business outside their business network. However some there are some key factors which make the E-finance important especially in developing countries, as:-

- It is cheaper Round-the-clock operation in ‘click-and-conquer’ world.
- Exchange of finance through the internet is an easier way to reach to the global customers and expand the business area globally.
- No more need of mediator.
- The ‘face to face’ interaction is shifting to ‘screen to face’ interaction.
- Reduces the cost of acquiring customers & new business area, providing financial services and expansion of corporate network

Various advantages of E-Finance can be divided into three categories viz. Financial Institutions, Customers and Government

5.5.1 Advantages to Financial Institutions

- Fewer transaction Costs.
- Less Loan initiation costs.
- Enhanced customer relationship management
- Ease at use of credit scoring
- Easy availability of credit information
- More target Customers in less manpower.

5.5.2 Advantages to Customers

- Availability of Cheaper Finance from financing institutions
- Quick and early delivery of financial services
- Less personal visit to financial institution is required
- Ease at taking loan from global institutions.
- More convenience process
- For Securing Loan less collateral is required

5.5.3 Advantages to Government

- Dynamic SME Sector
- Help in employment generation
- Healthy completion in financial market
- Contribution in GDP of country
- Helpful in poverty alleviation

5.6 E- Finance and India

In India the position of E-finance is still in its initial stage and has a lot to grow up, This is due to the insufficiency of the awareness of technological approach to the financial services. Though, the business firms, entrepreneurs, investors and customers are getting aware with the functions, importance and benefits of getting the financial task done through the internet technology. Corporate are getting modernised and seeking to shift the whole transaction digitalised. They are getting direct interconnected to their customers without any role of mediator, taking their online feedback and solving their problems by making a separate FAQ and suggestion/complain portals. It has put a great impetus on the other parts of business like

international market and financial accounting. It is a tool to overcome the lacuna of physical delivery of financial services.

All these changes have important significance for public policy towards the financial services industry and financial markets. They consider the implications for safety and soundness regulation, competition policy, consumer and investor protection and global public policy.

5.7 Meaning of E-banking

E-banking refers to electronic banking. It is like e-business in banking industry. E-banking is also called as "Virtual Banking" or "Online Banking". E-banking is a result of the growing expectations of bank's customers. E-banking involves information technology based banking. Under this I.T system, the banking services are delivered by way of a Computer-Controlled System. This bank's system does involve direct interface with the customers. The customers do not have to visit the premises. Banking is now no longer confined to the branches were one has to approach the branch in person, to withdraw cash or deposit a cheque or request a statement of accounts.

In India E-banking is of fairly recent origin. The traditional model for banking has been through branch banking. Only in the early 1990s there has been start of non-branch banking services. The good old manual systems on which Indian banking depended upon for centuries seem to have no place today.

E-bank is the electronic bank that provides the financial service for the individual client by means of Internet.

E-banking is defined to include the provision of retail and small value banking products and services through electronic channels as well as large value electronic payments and other wholesale banking services delivered electronically.

Electronic banking is an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick-and-mortar institution. Therefore transactions related to bank activities via Electronic means and medium is called electronic Banking.

Electronic banking, also known as electronic funds transfer (EFT), is simply the use of electronic means to transfer funds directly from one account to another, rather than by check or cash. You can use electronic funds transfer to:

- Have your paycheque deposited directly into your bank or credit union checking account.

- Withdraw money from your checking account from an ATM machine with a personal identification number (PIN), at your convenience, day or night.
- Instruct your bank to automatically pay certain monthly bills from your account, such as vehicle loan or mortgage payment.
- Have the bank transfer funds each month from your account to another account.
- Have your government social security benefits or tax refund deposited directly into your account.
- Buy groceries and other purchases at the point-of-sale.
- Use a smart card with a prepaid amount of money embedded in it for use instead of cash at a pay phone, road toll, or on college campuses at the bookstores.

5.8 Functions of E-banking

At present, the personal e-bank system provides the following services:

A. INQUIRY ABOUT THE INFORMATION OF ACCOUNT

The client inquires about the details of his own account information such as the card's/account's balance and the detailed historical records of the account and downloads the report list.

B. CARD ACCOUNTS' TRANSFER

The client can achieve the fund to another person's Credit Card in the same city.

C. BANK-SECURITIES ACCOUNTS TRANSFER

The client can achieve the fund transfer between his own bank savings accounts of his own Credit Card account and his own capital account in the securities company. Moreover, the client can inquire about the present balance at real time.

D. THE TRANSACTION OF FOREIGN EXCHANGE

The client can trade the foreign exchange, cancel orders and inquire about the information of the transaction of foreign exchange according to the exchange rate given by our bank on net.

E. THE B2C DISBURSEMENT ON NET

The client can do the real-time transfer and get the feedback information about payment from our bank when the client does shopping in the appointed web-site.

F. CLIENT SERVICE

The client can modify the login password, information of the Credit Card and the client information in e-bank on net.

G. ACCOUNT MANAGEMENT

The client can modify his own limits of right and state of the registered account in the personal e-bank, such as modifying his own login password, freezing or deleting some cards and so on.

H. REPORTING THE LOSS IF THE ACCOUNT

The client can report the loss in the local area (not nationwide) when the client‟s Credit Card or passbook is missing or stolen.

Popular Services Covered Under E-Banking: Indian banks offer to their customers following E-Banking products and services:

1. Automated Teller Machines
2. Telephone Banking
3. Electronic Clearing Cards
4. Smart Cards
5. Electronic Funds Transfer (EFT) System
6. Electronic Clearing Services
7. Mobile Banking
8. Internet Banking
9. Telebanking
10. Door Step Banking

Description of Services

A description of some basic services provided by Electronic Banking is given below:

- **SMS Banking:** Short Message Service (SMS) is the formal name for text messaging. SMS banking allows customers to make simple transactions to their bank accounts by sending and receiving text messages.
- **Electronic Funds Transfer:** Electronic Funds Transfer (EFT) is a system of transferring money from one bank account to another without any direct paper money transaction.
- **Any Branch Banking:** Any branch banking is the service where an account is accessible from any branch of a particular bank. In Bangladesh the term is widely popularized as online banking.
- **Automated Teller Machine (ATM):** ATM means computerized machine that permits bank customers to gain access to their accounts and permit them to conduct some limited scale banking transactions with a magnetically encoded plastic card and a code number.

- **Point of Sale (POS):** Point of Sale (POS) service is an innovative electronic money transferring system that allows the customers of banks to pay for their purchases through their ATM and credit card at any POS enabled retailer.
- **Debit Cards:** Debit cards are linked directly to the bank account of its holder. The holder of debit card can use it to buy goods or withdraw cash and the amount is taken from the bank account right away.
- **Credit Cards:** A credit card is a form of borrowing. Credit cards allow its holder to 'buy goods now and pay later' – called 'buying on credit'. They aren't linked to the bank account of the customers.
- **Banking KIOSK:** KIOSK Banking offers customers the flexibility to conduct their banking transactions via the KIOSK machine. The customer must have a Debit Card and a PIN. When one inserts the debit Card into the Kiosk, he/she will be prompted to enter the PIN. He/she can then begin using KIOSK Banking.
- **SWIFT:** The Society for Worldwide Interbank Financial Telecommunication ("SWIFT") operates a worldwide financial messaging network which exchanges messages between banks and other financial institutions.

5.9 Importance of E-Banking

Businesses rely on efficient and rapid access to banking information for cash flow reviews, auditing and daily financial transaction processing. E-banking offers ease of access, secure transactions and 24-hour banking options. From small start-up companies to more established entities, small businesses rely on e-banking to eliminate runs to the bank and to make financial decisions with updated information. The importance of E-Banking is as follows:

Activity Review:

Business owners, accounting staff and other approved employees can access routine banking activity such as deposits, cleared checks and wired funds quickly through an online banking interface. This ease of review helps ensure the smooth processing of all banking transactions on a daily basis, rather than waiting for monthly statements. Errors or delays can be noted and resolved quicker, potentially before any business impact is felt.

Productivity:

E-banking leads to productivity gains. Automating routine bill payments, minimizing the need to physically visit the bank and the ability to work as needed rather than on banking hours

may decrease the time involved in performing routine banking activities. Additionally, online search tools, banking actions and other programs can allow staff members to research transactions and resolve banking problems on their own, without interacting with bank employees. In some cases, month-end reconciliations for credit card transactions and bank accounts can be automated by using e-banking files.

Lower Banking Costs

Banking relationships and costs are often based on resource requirements. Businesses that place more demands on banking employees and need more physical assistance with wire transfers, deposits, research requests and other banking activities often incur higher banking fees. Opting for e-banking minimizes business overhead and banking expenses.

Reduced Errors

Utilizing e-banking reduces banking errors. Automation of payments, wires or other consistent financial activities ensures payments are made on time and may prevent errors caused by keyboard slips or user error. Additionally, opting for electronic banking eliminates errors due to poor handwriting or mistaken information. In many cases, electronic files and daily reviews of banking data can be used to double or triple check vital accounting data, which increases the accuracy of financial statements.

Reduced Fraud

Increased scrutiny of corporate finances through audits and anti-fraud measures requires a high level of visibility for all financial transactions. Relying on e-banking provides an electronic footprint for all accounting personnel, managers and business owners who modify banking activities. E-banking offers visibility into banking activities, which makes it harder for under-the-table or fraudulent activities to occur.

5.10 Forms of E-banking

Clients use modern communication media for remote communication with the bank: a modem, telephone, computer or payment card. A characteristic feature of these services is the client's uninterrupted round-the clock account access, i.e., independent of banking business hours and the ability to execute local and international payments directly from the comfort of the home or office. This reduces cash handling and transport costs, lowers the risk of theft or accepting counterfeit bank notes, increases speed and enhances the comfort of making payments.

Electronic communication means are particularly coming to the forefront. These are more convenient, faster, and often cheaper for clients. Banking experience shows it is suitable to use combinations of several communication means, depending on individual segments, clients, and types of operations, products and situations. Electronic banking is a service that specifically uses electronic communication forms.

Electronic banking can be divided on the basis of the instruments used: telephone connection, personal computers, means of payment [bank cards] and self-service zones.

Electronic Banking Using a Telephone Connection

Telephone banking and the first banking services using classic telephone lines for communication date back to the turn of the end of the last century. At the close of the 20th century mobile phones also started to be used in banking. Banks quickly responded to the using of mobile telephones world-wide and began communicating with their clients by SMS messages. Each financial institution offers this under a different name, but the essential product remains the same. A mobile phone can be used to communicate with a so-called telephone banker or an automated telephone system, just as well as a fixed line. However, opportunities for mobile phone usage in communication with a bank are much greater. Mobile phone use represents a direct communication channel that spread on a massive scale through which clients have immediate access to typing a bank operation, ordering services or working with accounts. Electronic banking using a telephone connection can be divided into phone banking (ATS, client advisor) and mobile banking (SMS banking, GSM SIM Toolkit and WAP).

SMS banking

It is a type of mobile banking, a technology-enabled service offering from banks to its customers, permitting them to operate selected banking services over their mobile phones using SMS messaging. SMS banking uses short text messages sent through the client's mobile phone. SMS text messages can be used for both passive and active operations similarly as with classic telephone banking. A client can automatically receive information about his account balance: an SMS is sent to the client immediately after a certain operation is performed, or on request: a client sends the bank a correctly formatted message which processes it and answers the client's request by SMS.

Information sent on request mostly concerns current interest rates or currency exchange rates. Providing these is simple for the bank because this is publicly accessible information that

needs no protection. A client however can request information about the balance in his account, which is not public information and must be protected when it is provided. Passwords are used for this purpose or technologies based on the principle of an electronic key. A client however is required to know the code of every transaction including constant and variable symbols. The whole message containing data separated by # symbols sometimes has up to fifty characters. Users can easily make mistakes. This is frequently a limiting factor for clients, reducing the comfort factor in this service.

GSM SIM Toolkit

The GSM SIM Toolkit service can only be used from a mobile phone supporting this technology. GSM SIM Toolkit is a software interface that enables arbitrary changes to the mobile phone menu. Operators supporting this technology can use it to personalize mobile phone menus. This means that only functions activated and paid for will appear on the user menu. This technology dates back to 1998. Among the first companies to use it in banking applications based on the

GSM SIM Toolkit standard were RadioMobil and Expandia Bank in the Czech Republic. Most mobile phones now on the market support for the GSM SIM Toolkit. To use this service the client needs to be using services of an operator supporting this standard in its network, be a client of a bank that offers handling of accounts through the GSM SIM Toolkit, have a mobile phone supporting GSM SIM Toolkit technology and use a special SIM card for banking services. After buying a special SIM card and activating it at the pertinent bank branch the client can begin using this service. The mobile phone menu will be widened to include the Banking Services item, through which it is possible to carry out active or passive banking operations.

The precise structure differs from one financial institution to another. Security is what is important here. To access banking services it is necessary to know BPUK (PUK for banking applications) and BPIN. BPUK is assigned to a client by the bank when the application is activated and recorded on the mobile phone's SIM card. BPIN is used for every access to protected items in the banking application. When a client makes three unsuccessful attempts to type the BPIN, access to the banking application and its items is blocked, it is necessary to know the BPUK to unblock it. When the client fails ten times to type the right BPUK the SIM card can no longer be used for banking services. The main advantage of this service is its simplicity. A client just follows instructions on the mobile phone display.

WAP (Wireless Application Protocol)

WAP is often compared to web pages, although this is a simplification. Unlike pages appearing on a computer monitor, WAP presents its output on a small mobile phone display, therefore concentrating on text information. It is a form of gateway to various services prepared by a mobile network operator or another firm. One condition for using the service is that the client must have a mobile phone supporting WAP technology.

Security is again provided by an electronic key. WAP banking has not caught on very well so far, some banks however continue to offer it despite the relatively low number of users.

Electronic Banking using Personal Computers

Along with significant growth in the usage of mobile phones in banking practice, personal computers have also come to the fore, which to an even greater extent facilitate and modernize banking service provision. In an information society this communication instrument plays an irreplaceable role and is indispensable for the present day banking sphere. The area of electronic banking realized through personal computers can be divided into home banking, internet banking and mail banking.

Home Banking

Home banking is a service that enables a bank client to handle his accounts from a computer from a place selected in advance, at home or in the office. The main features of home banking systems are the high level of security, comfort, simplicity of use, openness of the system, wide communication possibilities, networking, definition of users and their rights, automated data transmission and the option to define a combined signature specimen.

A home banking system usually consists of two parts: a bank computer program and a program in the client's computer. The bank program works as a communication server. It receives calls from clients, verifies their identity, receives data from them, authenticates digital signatures, generates digital receipts and sends data to clients. A home banking computer system is a multi user application, meaning that several of the client's employees can work with it, in particular:

a) administrator – can define new employees, change rights,

b) sender – ensures communication with the bank and transmission of prepared data,

c) accountant – can type payment orders and orders for collection,

b) viewer – can browse through statements and announcements received.

This system is open and can be expanded in the future without great cost.

Internet Banking

Internet banking allows customers of a financial institution to conduct financial transactions on a secure website operated by the institution, which can be a retail or virtual bank, credit union or society. It may include of any transactions related to online usage. Internet banking can be used from the home or the office, as well as an internet café, although the latter is not recommended for security reasons. In order to handle his account a user just needs an internet browser (such as MS Explorer or Netscape Navigator).

A client cannot avoid visiting the bank though, because he must first ask for an identification code. After opening the bank's web site the client simply selects internet banking and, further to proper identification, can perform passive or active operations. Good internet banking should provide a maximum of services.

No less important are the graphic interface, clarity, simplicity, and unambiguity of usage. The intelligibility of texts determines simplicity and speed of understanding of the meaning of menu items, data fields, and general text information displayed to the client.

Safety for concrete applications is assured by client authentication, verification of data and data protection by encryption. Client identification is done using passwords or codes. The client chooses some of these and the bank assigns others. It is recommended to choose a password made up of various types of characters, which can be a combination of numbers, lower case and capital letters, and special symbols.

Banks usually protect large volume transactions with additional security means, such as an encryption (authentication) calculator, or a token, which generates nonrecurring random passwords, which a client types on confirming an order. The token itself is protected by certain security features. Work with it is only enabled after the client types a four-digit PIN code, whereby the user can change the PIN at any time. In the event of three failed attempts to type the correct PIN the token blocks itself. After 60 seconds of inactivity a token automatically switches itself off and once switched back on, it again requests the PIN. When a client generates several (for example 10) authentication codes in succession and types none of them into the client system, the key becomes desynchronized.

This protection serves to prevent use of the key for other purposes. A cheaper and, based on its dimensions, more practical alternative to a token is a grid card. This is a card with a mesh

drawn on it with fields with random generated characters. The user authorizes an active operation by typing the right code from the field of the card the operator requests from him.

Mail Banking

Mail banking is another electronic banking service that makes it possible to communicate with the bank by electronic mail or e-mail. The most frequently used service is sending account statements at agreed periodicity to the client's mailbox. E-mail is not used for more complex operations.

Mobile banking

It is also known as M-Banking, mbanking. It is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA).

5.11 Advantages of E-banking

The Advantages or benefits can be classified in three categories, these are:

1. National Point of View
2. Banks' Point of View
3. Customers' Point of View

5.11.1 National Point of View

Though in these days banks transaction and activities has brought negative impact on the economy of our country, the investment in e-banking by banks can make some long-term benefits for our country. The advantages that our country is getting from e-banking action are:

Job creation

The issue of computers eliminating jobs of people was quite emotional and painfully real. But it has two sides that automation will eliminate certain types of job like record keeper and also created jobs like administrator, system analyst, programmer, operator etc. and helped to reduce unemployment problem.

Contribution to GDP

Banks with a national economy, work towards building national capital, increasing national savings and mobilizing investments in trade and industry.

Economic benefits: E-banking served so many benefits not only to the bank itself, but also to the society as a whole.

- E-banking made finance economically possible: (i) Lower operational costs of banks (ii) Automated process (iii) Accelerated credit decisions (iv) Lowered minimum loan size to be profitable.
- Potentially lower margins: (i) Lower cost of entry (ii) Expanded financing reach (iii) Increased transparency.
- Expand reached through self-service: (i) Lower transaction cost (ii) Make some corporate services economically feasible for society (iii) Make anytime access to accounts and loan information possible.

5.11.2 Banks' point of view

From the banks' view point, banks are getting some specific benefits or advantages after starting the e-banking services. These advantages are:

Branding

Banks offering e-banking services was better branding and better responsiveness to the market.

Profit Maximization

The main goal of every company was to maximize profits for its owners and banks were not any exception. Banks are increasing its profit by reducing the cost of paper, time etc. by using e-banking. Thus, automated e-banking services offered a perfect opportunity for maximizing profits.

Increased Services Quality

Features of E-banking services include less time, complete transaction, no human conflict and presence etc. thus the quality of services of bank is increasing day by day.

Increased Customer Rate

It is the most noticeable change in bank after starting e-banking services. Customers are accepting this medium beside a traditional account. Ultimately, the profit of bank is increasing.

5.11.3 Customers' point of view

The main benefit from the bank customers' point of view was significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money. The main benefits of e-banking were as follows:

- ❖ Increased comfort and timesaving-transactions made without requiring the physical interaction with the bank.

- Quick and continuous access to information.
- Corporations had easier access to information as they can access multiple accounts at the click of a button.
- Better cash management. E-banking facilities speed up cash cycle and increases efficiency of business processes as large variety of cash management instruments is available on Internet sites of banks.
- Private customers looked for slightly different kind of benefits from e-banking.
- Reduced costs**:** This was in terms of the cost of availing and using the various banking products and services.
- Convenience**:** All the banking transactions performed from the comfort of the home or office or from the place a customer wants to.
- Speed**:** The response of the medium was very fast; therefore customers actually waited till the last minute before concluding a fund transfer.
- **Funds management:** Customers downloaded their history of different accounts and do a "what-if" analysis on their own PC before affecting any transaction on the web.

5.12 Traditional Banking vs. E-Banking

Traditional banking and e-banking are two ways for getting the benefits from bank. Both have benefits and disadvantages. Customer can use both or any of these facilities.

Here we are showing the differences between traditional banking and e-banking

1. Basic Introduction

(a) Traditional Banking

In traditional banking system, a customer can open any bank account in banks; take the facility of saving his money by depositing money in local bank. He can withdraw his money through cheque, counter payment and through bank draft. He can meet the bank manager and solve his problem. He can take the physical help for getting loan from bank.

(b) E-banking

E-banking means Internet banking or modern banking. In this method, customer gets his bank account ID and password and he can check his account, pay his bill and print his receipt through his home personal computer which is connected with Internet. E-banking is development of today banking system. In other words, e-banking is electronic banking whose facility, you can take through your regular broadband Internet connection.

2. Benefits

(a) Traditional Banking

Traditional banking has totally improved from previous face. Traditional banking has improved and there is minimum chance of fraud. For example, **now banks started installing surveillance cameras.** Banks do not want to take risk of customer's money. Customer's loss is their loss. They deduct fraud cases by monitoring the activities through these surveillance cameras.

(b) E-banking

(i) Convenient

E-banking is convenient because we can use e-banking for tracking money in bank without going to bank.

(ii) Protection of Environment

E-banking, can also protect our environment. Suppose, you have to withdraw Rs. 500,000 from HDFC bank and deposit it to SBI. What will you do? You will start your vehicle and go to HDFC bank and withdraw the money and then go to SBI for depositing this money. By using vehicle, you are increasing the pollution in the environment. We can protect our environment by using e-banking. Just within 5 minute, we can transfer our money from HDFC bank to SBI bank through home e-banking facility.

3. Disadvantages

(a) Traditional Banking

(i) Robbery

Open any day newspaper; there will be one new bank robbery case. This is the disadvantage. No one can do same thing in e-banking.

(ii) Time limitation

Banks are opened from 9: 00 to 5:00 p.m. But, it may possible that we have to pay at 11:00 p.m. which can be done through e-banking not traditional banking.

(b) E-banking

Hacking, spyware program, computer virus and breaking online password are the weakness of e-banking. Online big hackers are using computer virus and after spreading it, they compromise your computer. After this, they know all detail and banking password and illegally

transfer all your money. Next day, your bank account may be zero. Even you can stop this crime by writing strong password but you cannot remove it totally.

5.13 How Does Electronic Banking Work?

Banking was once paper-based, meaning that people wrote checks and withdrew paper money to perform their everyday financial transactions. More recently, electronic banking has become the norm for consumers. One may benefit from learning the basics of how electronic banking works as well as its advantages and disadvantages.

Electronic banking transactions typically involve three parties --- the bank, the consumer and a merchant. In some cases, only the bank and the consumer must participate to complete the transaction. The consumer initiates the transaction by either submitting the request online, going to a store or visiting an ATM machine. The bank receives the request and either approves or rejects the electronic transfer of funds based on the accuracy of the data provided in the request (card number, address, routing number or account number) and the available funds in the case of withdrawals. After processing is completed, the funds electronically transfer to or from the consumer's account to reach the intended recipient.

After all, Banking Sector is giving all the services through Electronic Banking which is available in the world. But the services can be varied in case of Geographic cause, networking problem and much more. If these problems are removed then it is expected that the whole country will be under banking services through Electronic Banking Methods.

E-banking is a borderless entity permitting anytime, anywhere and anyhow banking. This facilitates us with all the functions and many advantages as compared to traditional banking services. During this step of the process, controls that could mitigate or eliminate the identified risks, as appropriate to the organization’s operations, are provided. The goal of the recommended controls is to reduce the level of risk to the IT system and its data to an acceptable level.

In India, E-banking is in a nascent stage. No doubt Indian banks are making sincere efforts for the adoption of advanced technology and installation of e-delivery channels but still masses are wary of the concept. E-banks should create awareness among people about E-banking products and services. Customers should be made literate about the use of e-banking products and services. Indicators of the challenges of E-banking should be taken into account to reap the maximum benefits of E-banking in India.

5.14 Meaning of E-Trading

Once, the only way to trade stocks was through a stock broker. They would take orders, make suggestions and then handle the entirety of the actual buying and selling of stocks. With the advent of the internet, stock brokers have been used by those who intend to trade large quantities of stock. The average person no longer needs a stock broker as he can trade online. When it comes to electronic trading, for most individual investors, taking a long-term buy-and-hold approach is probably the best strategy. Most of us simply don't have the time or the expertise to trade for a living. But for some investors, trading can be an extremely lucrative profession. There have always been professionals who made their living off of trading. It wasn't until recently, however, that technology enabled individuals who weren't working for a brokerage to directly access the markets. Electronic stock trading, or E-trading, is the practice of buying and selling stock and other assets using an electronic stock brokerage service. Electronic stock trading can have several advantages over traditional trading through a live broker.

Definition

- Electronic trading services allow users to sign up over the Internet and conduct stock transactions using a purely electronic interface on the Web.
- The process of conducting stock market transactions (buy and sell orders) using an electronic platform that transfers the orders to a physical person to complete. Electronic trading has become a popular method due to its ability to conducts transactions quickly and effectively.
- **Electronic trading** is a method of trading securities (such as stocks, and bonds), foreign exchange or financial derivatives electronically.
- Information technology is used to bring together buyers and sellers through an electronic trading platform and network to create virtual market places. This can include various exchange-based systems, such as NASDAQ, NYSE Arca and Globex, as well as other types of trading platforms, such as electronic communication networks (ECNs), alternative trading systems, crossing networks and "dark pools."
- Electronic trading is rapidly replacing human trading in global securities markets.
- Electronic trading is in contrast to older floor trading and phone trading and has a number of advantages, but glitches and cancelled trades do still occur.

5.15 Importance and Advantages of Electronic Trading

Ease of Access

E-trading services are easy for anyone to access and use. All that is required to use E-trading services is an Internet connection and funds to invest. Accounts can often be set up within a few days and transfers can be made into accounts from a linked account on demand, so you can get money into investments quickly if necessary.

Cost

Another potential advantage of electronic trading is that the cost of transactions can be much less than using a traditional stock broker. Often stock brokers will charge not only a brokerage fee for their services, but they take a percentage of any earnings. They may also have other fees added into the exchange, depending on the stockbroker. Brokers make their living working with stocks. All that can make them very effective, but also very costly. Electronic trading services are automated which can reduce the cost of placing trades, allowing electronic services to charge low transaction fees. The flat rates charged by E-trading firms are usually extremely inexpensive by comparison.

Control

This was always one of the complaints when brokers had a stranglehold on the market. They would often refuse to perform a trade they thought was a poor investment. If they saw any flaws in an investment, they had full authority to deny the trade to their clients. While this could save the potential client from making a bad investment, it could also prevent them from taking a risk that would pay off enormously. Online stock trading removes the middleman between traders and the stocks they want.

Self-Directed Investing

Many investors pay investment professionals to manage their investments for them. While this can have advantages for those who do not understand investing, professional services often charge commissions that can sap investment gains. Electronic investing allows users to direct their own investments and buy and sell whenever they please without having to interact with middlemen.

Convenience

Electronic stock trading also offers greater convenience than using a conventional stock broker. With E-trading, trades can be made anywhere as long as you have access to the internet. For instance, if one is on a business trip to China, he could make trades from a laptop at hotel without having to call anyone. Accounts are typically accessible at any time of the day, allowing users to look over their investments whenever they please.

Subscription Levels

Electronic stock trading services may offer a variety of subscription levels for different types of investors. For instance, some accounts are free and charge fees only when you make trades. Others may charge monthly fees, but allow traders to make trades for less money, which can be advantageous to investors that expect to trade often.

Propinquity

The chain of investor to broker to trade to payoff was too time consuming process to execute the trade in time, which is a danger in the world of stock market where time is money. Trading online allows immediate trading for the investor and real-time updates regarding a stock's performance. The lag between the investor's purchase and the actual time the stocks are bought has been reduced to nil.

Able to make as many or as few trades

Stockbrokers usually required a minimum trade allotment which means an individual could not make a single trade for a paltry sum. They were forced to follow the broker's guidelines. This prevented casual traders from being able to trade whatever volume of investments they wanted.

The stock market has come a long way from the ancient days of faceless men. Now it is just as easy for anyone to trade online while sitting in home. The benefit of online stock trading is that it wrests control of the market from the brokers and puts it into the hands of the individual.

5.16 Summary

The E-Finance system is designed to allow for paperless submission of a variety of financial documents. Nowadays, E-finance has become a buzzword among the entrepreneur, business firms and investors. E-finance has emerged as solution to simplify the complexions involved in dealing with finance. It is somewhat the shift of system of financial service from the real world

to a virtual one. This unit highlights the scope and importance of E-finance, areas of E-finance and the status of E-finance in India.

Businesses rely on efficient and rapid access to banking information for daily financial transaction processing. E-banking offers ease of access, secure transactions and 24-hour banking options. From small start-up companies to more established entities, e-banking is a boon to make financial decisions with updated information. Banking is now no longer confined to the branches were one has to approach the branch in person, to withdraw cash or deposit a cheque or request a statement of accounts. In India E-banking is of recent origin. E-bank is the electronic bank that provides the financial service for the individual client by means of Internet. This unit brings to light the importance and functions of E-banking, explains various forms of E-banking, highlights the advantages of E-banking and the working of E-banking system.

The average person no longer needs a stock broker as he can trade online. Electronic trading services allow users to sign up over the Internet and conduct stock transactions using a purely electronic interface on the Web. This unit gives a picture of the importance and advantages of E-trading.

5.17 Key Terms

E-finance is defined as the provision of financial services and markets using electronic communication and computation.

E-bank is the electronic bank that provides the financial service for the individual client by means of Internet.

E-banking is defined to include the provision of retail and small value banking products and services through electronic channels as well as large value electronic payments and other wholesale banking services delivered electronically.

Automated Teller Machine (ATM): ATM means computerized machine that permits bank customers to gain access to their accounts and permit them to conduct some limited scale banking transactions with a magnetically encoded plastic card and a code number.

Point of Sale (POS): Point of Sale (POS) service is an innovative electronic money transferring system that allows the customers of banks to pay for their purchases through their ATM and credit card at any POS enabled retailer.

Banking KIOSK: KIOSK Banking offers customers the flexibility to conduct their banking transactions via the KIOSK machine. The customer must have a Debit Card and a PIN. When

one inserts the debit Card into the Kiosk, he/she will be prompted to enter the PIN. He/she can then begin using KIOSK Banking.

SWIFT: The Society for Worldwide Interbank Financial Telecommunication ("SWIFT") operates a worldwide financial messaging network which exchanges messages between banks and other financial institutions.

SMS Banking: Short Message Service (SMS) is the formal name for text messaging. SMS banking allows customers to make simple transactions to their bank accounts by sending and receiving text messages.

Electronic Funds Transfer: Electronic Funds Transfer (EFT) is a system of transferring money from one bank account to another without any direct paper money transaction.

Home banking is a service that enables a bank client to handle his accounts from a computer from a place selected in advance, at home or in the office.

Mobile banking: It is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or Personal Digital Assistant (PDA).

Electronic trading is a method of trading securities (such as stocks, and bonds), foreign exchange or financial derivatives electronically.

5.18 Self Evaluation Questions

1. What is E-finance?
2. What is E-trading?
3. What is E-banking?
4. What is Internet Banking?
5. What is SMS Banking?
6. What is Home Banking?
7. What is Mobile Banking?
8. Explain the scope of E-finance.
9. List out popular services rendered by E-banking
10. Write a note on GSM SIM Toolkit
11. What do you understand by WAP (Wireless Application Protocol)?
12. What is Mail Banking?
13. Bring out the importance of E-finance.

14. State the importance of E-Banking
15. What are the functions of E-banking?
16. Describe various forms of E-banking
17. Enumerate the advantages of E-banking
18. Differentiate traditional banking from E-banking
19. Enunciate the importance and advantages of E-trading

UNIT – VI

Legal Framework for E-commerce

Learning objectives

After studying this unit, students would be able to understand:

- E-Commerce Legal Framework
- Provision of Information Technology Act, 2000
- Provision of Information Technology Act, 2008
- Internet and Copyrights
- Concept of Defamation
- Consumer Privacy
- Formation of E-Contracts
- Taxation issues in Internet
- Domain Name in Internet

Contents

6.1 Introduction

Technological advancements in the field of communications have greatly shortened the distance across the globe. Revolutionary changes in both synchronous and asynchronous communication have taken place as a result of the popularity of the Internet. Vast amounts of information, formerly expensive and difficult to obtain, now proliferate on the Internet. The approach to business transactions has changed, as new technology replaces traditional modes of doing business. Consequently, regulations to monitor activities over the Internet must be implemented in order to keep pace with the new advances in information technology.

E-commerce has its origin in foreign jurisdictions especially in developed nations. These jurisdictions have proper laws and adequate infrastructure to cater to the needs of e-commerce

stakeholders. This has helped these stakeholders in not only complying with the laws of these jurisdictions. It also helped in contributing to the economy of these areas. But E-commerce in India is a totally different case. It has all the advantages of profit making and commercial viability even though it is not regulated by any e-commerce law.

Legal provisions pertaining to foreign direct investment (FDI), Foreign Exchange Management Act (FEMA), national taxation laws, cyber law due diligence, cyber security due diligence, e-commerce due diligence, etc are openly ignored in India. In some instance, Enforcement Directorate (ED) has also initiated investigation against big e-commerce players like Myntra, Flipkart and many more e-commerce websites operating in India. Many stakeholders have also protested against the unfair trade practices and predatory pricing tactics of Indian e-commerce websites.

The matter has reached to the level of Indian government that has also promised to look into the matter and draft suitable e-commerce law of India, if required. The alternative approach that can be adopted by Indian government is to amend the Information Technology Act, 2000 (IT Act 2000) to accommodate e-commerce related issues.

A special law to deal with e-commerce is necessary due to several peculiar features which are specific to e-commerce world. These are:

- The Internet has no physical or national boundaries. There is no single "controller" of the Internet.
- All correspondence and documents are in electronic form. There are no handwritten or physically signed documents. There are no other identifying marks such as printed or embossed letter head, seals and thumb impressions.
- Taxation laws, International laws are not very clear between countries.
- As the Internet is "open" there is a perceived lack of security and confidentiality unless special protections are taken.
- Computer and communication technologies are changing rapidly.
- Most common people are ignorant about technology.

6.2 The Information Technology Act 2000

India is one of the few countries in the world to pass the first cyber law by the Parliament on the 17th October, 2000. It is called Information Technology Act, 2000. The Act came into force with a view to promote the growth of e-commerce transactions and e-governance in the

country. The Act was drafted by using the model law on e-commerce initiated by the United Nations Commission on International Trade Law (UNCTTRL). The primary object is to create trust in the electronic environment through the use of digital signatures. It provides the legal infrastructure for conducting e-commerce transactions.

The primary objectives of the Act are:

- To promote e-commerce and amend existing laws in tune with the new technology.
- To enable the conclusion of contracts and enforce rights and obligations relevant to electronic documents.
- To recognise electronic documents and to recognize digital signature analogous to physical signature.
- To certify the authenticity of digital signatures by an appropriate Government
- To ensure wide acceptance and enforcement of digitally signed documents in courts of law.
- To promote e-governance the Act proposes Government offices and agencies to accept electronic records signed digitally.
- To make necessary consequential amendments in the Indian Penal Code and the Indian Evidence Act, 1982 which deal with offences related to documents and paper-based transactions.
- To amend the Reserve Bank of India Act, 1934 to facilitate Electronic Funds Transfer between the financial institutions and bankers.
- To amend the Bankers' Books Evidence Act, 1891 to give legal sanctity to bank accounts maintained in electronic form by banks.

The Act Specifically left out the following from its scope:

- Negotiable Instruments
- Power of Attorney
- Trust Deed
- Will
- Contract for sale of property

The above documents are normally registered by registration offices of various States after paying appropriate stamp duties.

The major interesting aspects of the Act are:

- E-mail correspondence has legal status and can be used as evidence in a court of law.
- The use of private key and public key in encryption has been recognised as a secure method of transmitting data electronically. Correspondence to this digital signature based on the private key-public key pair is recognized for signing documents.
- Since amendment, signature in the Act is assumed to be digital signature.
- A controller of public key certifying authorities has been appointed by the Government to authenticate public keys. He can grant licences to certifying authorities.
- The foreign public key certifying authorities can be recognized by the Controller in India.
- All applications to Government bodies can be filed in electronic form. The Government can issue licences, permits, sanctions, approvals, etc., online in electronic form. All these have to be digitally signed.
- Archival documents of companies and government departments to be kept for a specified period can now be stored in CDROM or tapes.
- Online contracts are recognized by the Act. Electronic contracts are considered legally valid. They are enforceable by law. The originator of an electronic record sends it as a message. It is considered to have been received by the addressee, if he sends an acknowledgement. Formation of online contracts depends on the terms and conditions stated by the originator. The time of dispatch of the electronic record is deemed to be the time at which the electronic record enters a computer resource outside the control of the originator. Likewise, the time of receipt of an electronic record is taken to be the time it enters the computer resource designated by the addressee.

The following have been classified as offences by the Information Technology Act, 2000 and punishment of imprisonment and/or fine has been specified.

- If a company's network is digitally accessed and stored data is stolen or damaged or flooding the site leading to a denial of access to a company's site, monetary claims up to Rs. 1 Crore can be made against the intruder.
- If a person(s) steals source code of a company's computer or tampers with it, a punishment of maximum 3 years imprisonment and/or Rs. 2 lakhs fine can be levied.
- If private confidential information is accessed for unlawful purposes by a person(s) it is punishable with imprisonment of up to 2 years.

For the following offences committed by a cyber criminal, popularly known as a hacker, the Act specifies imprisonment and fine. The IT Act, 2000 deals with the following categories of cyber crimes:

1. Tampering with computer resource code
2. Hacking
3. Publishing any obscene information
4. Breach of privacy
5. Misrepresentation
6. Publishing digital signature which is false for a particular type

Cyber crimes that generally occur within organizations are:

- E-mail abuse
- Spam mails
- Cyber defamation
- Theft of source code
- Exchange of business secrets and documents
- Insiders attacks on personnel databases
- Use of office computer for running other businesses
- Transmission and viewing of pornographic materials
- External cyber attacks on an organization resulting in denial of service
- Information espionage

Many countries have enacted specific laws to deal with Internet crimes or cyber crimes. For example, USA has the PATARIOT Act, Singapore, Malaysia, Britain, South Korea and Japan have implemented similar laws. However, different countries have differences about the perception and definitions of crimes. An activity deemed criminal in a target country may not be considered so in the country from where the offending action was launched. For example, pornography websites are perfectly legal in the USA while accessing them from India may be an illegal activity. The cyber world is complex. Some interesting points about cyber crimes are:

- The definition of hacking covers virus, worm and Trojan
- The Act prescribes punishment for publishing obscene information on a website
- Unauthorized access to ‘protected systems’ is considered as an offence and teh Act prescribes very severe punishment.

- The Act prescribes punishment for cyber crimes. It prescribes punishment in the form of fine and imprisonment.
- Downloading copies or extracts of confidential data from a database without permission of the owner.
- Introducing any soft contaminant or computer virus into any computer or a computer network.
- Altering or deleting data from a person's computer without the person's knowledge.
- Publishing obscene literature / pictures accessible from the Internet.
- Charging for services availed of by a person to another person by tampering with or manipulating accounts in a computer network.
- Using the Internet for any act which will compromise the sovereignty or integrity of India.

A legal framework has also been created for trying cyber crimes. They are:

- The IT Act provides for bringing a cyber criminal to justice irrespective of his nationality and location anywhere in the world.
- An adjudicating officer has been appointed to hold inquiries under the Act.
- The Act prescribes the damages that may be payable as compensation by the offender. An application must be made by the victim for claiming compensation. The damages to be paid may be assessed by an adjudicating officer.
- The Act precludes Internet Service Providers (ISPs) and other service providers from its scope.
- All appeals against the order of an adjudicating officer are to be heard by the Cyber Regulations Appellate Tribunal and not by any civil court.
- A Cyber Appellate Tribunal with a high court judge as presiding officer and other experts have been appointed.
- The institution of the Cyber Regulations Appellate Tribunal, (CRAT) presided over by a judge of the High court, shall be the appellate authority against all the decisions and rulings of the CCA and the Adjudicating Officers under the IT Act.
- All appeals against the order of the Tribunal will be heard by a High Court.
- Police officers of a certain rank have been given the authority to enter any public place (for example, a cyber cafe) and search and arrest without warrant if they suspect that an

action breaking the provisions of the IT Act is being committed. This is a draconian measure which is not probably entirely warranted.

- ❖ The Act does not cover common cyber crimes such as cyber stalking, cyber harassment, stalling of Internet hours, cyber defamation, etc. Cyber stalking and e-mail harassment are emerging as major crimes.
- ❖ A Cyber Regulation Advisory Committee has been appointed to advise the controller of public key certifying authorities and the Government on matters relating to the actual implementation and working of the Act.
- ❖ The Act recognizes digital signatures. The IT Act provides for authentication of an electronic record through digital signature. The digital signature shall be effected by the use of an asymmetric crypto system and hash function. The digital signature works on the private and public key. While the private key is used to sign an electronic record by encrypting it the corresponding public key can alone verify that the record was signed by its owner's private key.
- ❖ The Certifying Authorities have to get license to issue digital signature certificates.
- ❖ Certifying Authorities (CAs) have to declare its practice in public in the form of what is known as its Certification Practice Statement (CPS)

6.3 Information Technology (Amendment) Act, 2008

Based on the criticism and experience gained by using the Information Technology Act, 2000 the Government formed an expert committee to review the IT Act in January 2005. The Committee had representatives from the Government, IT Industry and legal experts and submitted its report in August 2005. After approval from the Government, the Information Technology Act (Amendment) Bill, 2006 was submitted to the Parliament. The Parliament sent it to its standing committee which has made some more recommendations. The Bill is called IT (Amendment) Bill 2008 has been debated and passed by Lok Sabha and is now an Act. The main amendments are;

1. The term **'digital signature'** has been replaced with 'electronic signature' to make the Act more technology neutral. In the IT Act, 2000 an e-document is affixed with a digital signature which is based n encryption with a certified public key. It is not "technology neutral". If this encryption method is found insecure by some unforeseen future technology the entire law breaks down with all the structures which have been put in

place. In such case, other methods of signing such as affixing scanned thumb print (or other unique biometric makers), using a digital watermark, etc., may have to be used.

Thus, the amendment replaces the term digital signature by the term **electronic signature**. This new term does not exclude digital signature as it is an electronic signature. However, the types of electronic signatures which are allowed are not specified. It will be specified from "time to time" by the Government.

2. In the IT Act, 2000 the controller of public key certifying authorities is a government appointee in the Department of IT who has to keep in his or her office all public key certificates to allow anyone to access database of public key certificates to authenticate the certificate.

   This provision has been amended allowing the certifying authorities to provide public key certificates. The purpose is to relieve the controller's office whose public key database could become huge. However, authenticity of a certificate given by a responsible government official has better credibility, in public's perception.

3. The other set of important amendments relate to the protection of the privacy of personal data. Currently no specific law in the statue books in India addresses directly this issue of data privacy. Privacy is a right flowing from the constitutional guarantee of right to life.

   The 2008 Act places responsibility of ensuring security of personal data of individuals handled by a company. If through their negligence in securing the data of individuals "sensitive private data" is accessed by unauthorized persons, the company is liable to pay a compensation of up to Rs.5 crores to the affected individual. It does not define what constitutes "sensitive private data"

4. The amended Act also penalizes service providers who collect personal data to provide, for example, a free service, from disclosing it to anyone else with intent to cause injury to the individual.

5. Another amendment relates to circulation of indecent pictures or videos of individuals (e.g., nude pictures) without their permission. Anyone doing this can be jailed for a year and fined up to Rs.25 lakhs.

6. The term hacking which was used in IT Act has been replaced by the more accurate term computer related offence. As we pointed out while discussing IT Act 2000, the term hacker does not necessarily mean a cyber criminal.

7. The provision of the IT Act 2000 which relates to publishing and transmission of pornography has been substantially changed. Only entities which intentionally or knowingly are involved in publishing or transmission of pornographic material are punishable. Intermediaries have been excluded from the ambit of this law. For example, a search engine company like Google is not liable for pornographic material which is retrieved using their tool. However, if active collusion of the intermediary is proved in publishing and transmission of pornographic material, then it is liable. If an intermediary is informed about such an objectionable material, it must remove the material.
8. If an offence is committed by a company, the person managing its affairs (such as CEO) is normally liable. The amendment modifies this clause. A manager/director is punishable only if it is proved that the person connived in committing the offence and failed to prevent it.
9. The IT Act 2000 gave arbitrary powers to the police. Under its provision a police officer can enter, search and arrest an individual from a public place if he or she suspects that the IT Act is being violated. This provision has now been removed.
10. The IT Act 2000 provides an appellate authority to appeal against the rulings of the controller. It had one person appointed by the Government. It has been changed to "Cyber Appellate Tribunal" which would consist of a chairperson and other members to be appointed by the Government. One member of the tribunal will be a judicial member. The Government will also appoint an examiner (or examiner's office) to give expert opinion on electronic form of evidence.

The following material has been based on an analysis of the proposed bill which has been published by PRS Legislative Research, New Delhi. It is an analysis of some of the issues not properly addressed by the 2006 bill but has since been addressed in the 2008 Act.

- ❖ Currently telephone can be tapped and regular mail intercepted only to protect sovereignty of the country, national interest, etc. The 2008 amendment allows e-mail communications also to be intercepted by the police for investigation of any offence.
- ❖ As pointed out earlier there is no current law on privacy in India except under the constitutional guarantee of right to life. The IT Act 2000 does not specify what personal information may be collected, how it can be processed, used and disseminated. The 2008 Act provides compensation to persons whose personal data has been used unlawfully

without permission of the individual. It does not, however, address the issue of breach of privacy.

- ❖ Copying and destroying personal data without permission of the individual is punishable under the amended Act. If an employee of a company who is authorized to access persona data misuses it, there is no provision to deal with it.
- ❖ The 2008 Act defines child pornography. Using computer or communication device to propagate child pornography will attract exemplary punishment.
- ❖ The Act adds to the definition of intermediary telecom networks, Internet and web hosting service providers, search engines, online payment and auction sites. It defines cyber cafe as any facility which provides Internet access to the general public as part of their business and includes them as an intermediary.
- ❖ New offences have been added as part of the amended Act. They are: sending offensive messages using a computer or a mobile phone, disclosing information in breach of a lawful contract, cheating by using a computer, sending nude pictures of persons without their permission.

Other provisions which are now added are:

- ➢ Punishment has been prescribed for receiving stolen communication devices including computers.
- ➢ Dishonestly using electronic signature and password is an offence and it is punishable.
- ➢ If a person cheats by impersonating using a communication device or a computer resource, it is punishable.
- ➢ Cyber terrorism has been defined and exemplary punishment has been prescribed for terrorist acts using computers or communication device.
- ➢ The amended Act provides punishment for sending spam (i.e., unsolicited e-mail on a mass scale)
- ➢ Appropriate officials have been empowered to monitor and collect traffic data to ensure cyber security including virus and other computer contaminant distribution.
- ➢ Appropriate officials have been empowered to issue directions to ISP etc., to block public access of any information dissemination through a computer communication device which in their considered opinion is detriment to the sovereignty, integrity and defence of

India. Blocking of information can also be ordered to prevent incitement to the commission of cognizable offence related to security, sovereignty, etc., of India.

- An Indian computer emergency response team is to be formed to collect, analyze and disseminate information on cyber incidents and to forecast, alert and take emergency measures to handle such incidents. It will also issue guidelines, advisories, vulnerability notes to all concerned from time to time.

The standing committee of the Parliament which studied the bill made some suggestions which are listed below:

- Punishment for cyber crimes committed outside India cannot be enforced. It suggests that India should take the initiative to convene an International convention on the issue of cross border cyber crimes.
- Due diligence obligations must be enforced on intermediaries who deal with personal data before giving them immunity particularly in areas such as online auction sites and online market places.
- The complicated adjudication process proposed in the bill for obtaining compensation for various crimes should be simplified.
- The jurisdiction of the appellate tribunal and civil courts in various cases should be clarified.
- The government along with industry should initiate training programs for all the entities dealing with cyber crimes.

Cyber Security Issues of E-Commerce Business in India

- E-commerce business is flourishing at a great speed in India. Most of the e-commerce entrepreneurs are concentrating upon commercial aspects. But they are ignoring techno legal requirements that may affect their rights in the long run.
- For instance, e-commerce laws in India are spread across multiple legal frameworks and they are seldom followed by Indian e-commerce stakeholders. Even foreign e-commerce players and portals are required to be registered in India and comply with Indian laws.
- Similarly, e-commerce players are required to comply with cyber law and cyber security regulatory compliances in India. A dedicated law for cyber security breaches disclosures is also in pipeline that would impose stringent obligations upon e-commerce

players operating in India. Companies that would fail to comply with the cyber law due diligence requirements in India may be punished according to Indian laws.

- The cyber security challenges for Indian companies are very difficult to manage in the absence of proper planning and management. Directors of Indian companies and e-commerce websites can be held liable for improper cyber security dealings in India.
- Thus, cyber security issues of e-commerce businesses in India cannot be ignored by various stakeholders except at the risk of litigations and heavy monetary compensations.

Regulation of E-Commerce Websites in India

An ineffective cyber law of India and lack of cyber law skills among the law enforcement agencies of India is resulting in increased cyber crimes and offences through the medium of e-commerce websites in India. Further, cyber law awareness in India is also missing that is resulting in increased e-commerce frauds in India.

For instance, the e-commerce sites selling adult merchandise in India are openly violating the laws of India. Similarly, e-commerce websites in India are engaging in punishable soft porn publication and Indian government is sleeping over the matter.

There are well recognised legal requirements to start an e-commerce website in India and the legal formalities required for starting e-commerce business in India. As on date, the e-commerce websites are not following such techno legal requirements. They are also not following the cyber law due diligence requirements of India and are liable for Internet intermediary liability in India.

E-commerce websites dealing with online pharmacies, online gambling, online selling of adult merchandise, etc are openly and continuously violating the cyber law of India. However, Indian government has yet to take action against these offending e-commerce websites of India.

Recently, the Supreme Court of India has sought response from central government over blocking of porn websites in India. Similarly, the Supreme Court of India has entertained a public interest litigation seeking regulations and guidelines for effective investigation of cyber crimes in India.

The cyber law of India is too weak to tackle cyber criminals effectively. In fact, cyber law of India should be repealed and an effective cyber law must be formulated as soon as possible. The cyber criminals are becoming innovative day by day and our laws are grossly inadequate to deal with the same.

For instance, numerous websites, both Indian and foreign, are violating the cyber law of India by operating illegal e-commerce websites in India. These websites are engaging in illegal trade in wildlife, promising home delivery of live animals, prized animal parts and rare medicinal plants from across nations through simple internet banking formats.

These are transnational crimes where the authorship attribution for cyber crimes is very difficult to establish. Realising this reality, the India's Wildlife Crime Control Bureau (WCCB) is utilising the services of cyber crime experts to trace such cyber criminals. A preliminary inquiry by WCCB bureau's cyber crime specialists has indicated that nearly a thousand websites are advertising sale and delivery of live animals and animal products protected under the Wildlife Protection Act, 1972 of India and the global Convention on International Trade in Endangered Species (CITES).

Surprisingly, most of these websites are popular shopping websites, online classifieds and free ad posting websites, etc. They are clearly violating the cyber law and other laws of India and Indian government is not taking any action against these websites. It is high time to take strict penal action against such illegal e-commerce websites in India.

Legal Requirements to Start an E-Commerce Website in India

IT Act 2000 is the sole cyber law of India. The cyber law of India mandates that the e-commerce entrepreneurs and owners must ensure cyber law due diligence in India. The cyber law due diligence for companies in India has already become very stringent and many foreign and Indian companies and websites have been prosecuted in India for non exercise of cyber due diligence.

E-commerce entrepreneurs and owners in India must understand that legal issues of e-commerce in India are different for different categories of e-commerce. For instance, electronic trading of medical drugs in India requires more stringent e-commerce and legal compliances as compared to other e-commerce activities. Digital communication channels for drugs and healthcare products in India are scrutinised more aggressively than other e-commerce activities. Regulatory and legislative measures to check online pharmacies trading in banned drugs in India are already in pipeline.

The legal requirements for undertaking e-commerce in India also involve compliance with other laws like contract law, Indian penal code, etc. Further, online shopping in India also

involves compliance with the banking and financial norms applicable in India. For instance, take the case of PayPal in this regard. If PayPal has to allow online payments receipt and disbursements for its existing or proposed e-commerce activities, it has to take a license from Reserve Bank of India (RBI) in this regard. Further, cyber due diligence for Paypal and other online payment transferors in India is also required to be observed.

All e-commerce entrepreneurs and owners must do a proper techno legal due diligence before opening an e-commerce website. The Internet intermediary liability in India may be frequently invoked against e-commerce websites in India. The Information Technology (Intermediary Guidelines) Rules 2011 prescribes stringent liabilities for e-commerce websites in India. Further, e-commerce websites in India must ensure privacy protection, data protection, data security, cyber security, confidentiality maintenance, etc as well.

E-Commerce Compliances in India

Thousands of e-commerce portals have emerged in India. However, legal and compliance requirements pertaining to e-commerce have been totally ignored by almost all the e-commerce portals. There are many techno legal compliance requirements that e-commerce portals of India must comply with. Online shops pertain to online pharmacies, online gambling, electronics, etc. are more vulnerable categories. Indian government is also lax in implementing the regulatory and compliance requirements. Regulatory bodies covering these fields must be more vigil while keeping a strip upon illegal and unethical activities of those e-commerce portals.

Presently, cyber law compliances, due diligence and techno legal compliances are not followed by various e-commerce websites in India. There is an urgent need to scrutinise these e-commerce portals and prosecute the guilty for violations of Indian laws.

6. 4 Copyright and the Internet

"The Internet has been characterized as the largest threat to copyright since its inception. The Internet is flooded in information with varying degrees of copyright protection. Copyrighted works on the Net include stories, software, novels, screenplays, graphics, pictures, Usenet messages and even email. Almost everything on the Net is protected by copyright law. That can pose problems for the unfortunate surfer."

Generally, Copyright was developed to protect the creative work of authors and rests with the author. The copyright law protects only the expression of an idea and not the idea itself. In due course, it started protecting the originality of artists and innovators too. For example, the

Copyright Designs and Patent Act, 1988 in the UK allows protection of the following subject matters:

- Original Literary, dramatic, musical and artistic works
- The typographical arrangement of published editions of Literary, dramatic, or musical works
- Sound recordings
- Broadcasts
- Cable programmes

Copyright helps an author to protect his work from being copied, taken or used by others without permission. Copyright owners enjoy the following rights – reproduce, distribute, create derivative works, publicly perform, display publicly, digitally perform.

A copyright infringement takes place when one of the rights of the copyright holder is violated. But the copyright law applies to the downloaded matter, in much the same way that it applies to physical copies. It has been established in a manner of disputes that a website is likely to enjoy copyright protection. However, a website operator has to ensure that he does not violate someone else's copyright while creating the site.

Plagiarism

Plagiarism is the act of stealing and passing off the ideas, words, or other intellectual property produced by another as one's own. For example, using someone else's words in a research paper without citing the source is an act of plagiarism.

COPYRIGHT ON INTERNET AND INDIAN LAW

Meaning of Copyright

Copyright is a form of intellectual property protection granted under Indian law to the creators of original works of authorship such as literary works (including computer programs, tables and compilations including computer databases which may be expressed in words, codes, schemes or in any other form, including a machine readable medium), dramatic, musical and artistic works, cinematographic films and sound recordings.

Section 14 of the Act provides the meaning of copyright in following words: For the purpose of this Act, "copyright" means the exclusive right subject to the provisions of this Act, to do or authorize the doing of any of the following acts in respect of a work or any substantial part thereof, namely:

a. In the case of a literary, dramatic or musical work not being a computer programmme,-

i. to reproduce the work in any material form including the storing of it in any medium by electronic means;

ii. to issue copies of the work to the public not being copies already in circulation;

iii. to perform the work in public, or communicate it to the public;

iv. to make any cinematograph film, or sound recording in respect of the work;

v. to make any translation of the work;

vi. to make any adaptation of the work;

vii. to do in relation to a translation or adaptation of work, any of the acts specified in relation to the work in sub-clause (i) to (iv).

b. In the case of a computer programme

i. to do any of the acts specified in clause (a);

ii. to sell or give on hire, or offer for sale or hire any copy of the computer programme, regardless of whether such copy has been sold or given on hire on earlier occasions;

c. in the case of an artistic work,-

i. to reproduce the work in any material form including depiction in three dimensions of a two dimensional work or in two dimensions of a three dimensional work;

ii. to communicate the work to the public;

iii. to issue copies of the work to the public not being copies already in circulation;

iv. to include the work in any cinematograph film;

v. to make any adaptation of the work;

vi. to do in relation to any adaptation of the work any of the acts specified in relation to the work in sub-clause (i) to (iii).

d. in the case of a cinematograph film,-

i. to make a copy of the film including a photograph of any image forming a part thereof;

ii. to sell or give on hire, or offer for sale or hire, any copy of the film, regardless of whether such copy has been sold or given on hire on earlier occasions;

e. in the case of a sound recording,-

i. to make any other sound recording embodying in it;

ii. to sell or give on hire, or offer for sale or hire, any copy of the sound recording, regardless of whether such copy has been sold or given on hire on earlier occasions;

iii. to communicate the sound recording to the public.

Exemption from liability vis-à-vis copyright and patent laws

Section 81 of the IT Act provides that nothing contained in the IT Act will restrict any person from exercising the rights granted to them under the Copyright Act, and the Patents Act, 1970. This provision is overarching and applies to all provisions of the IT Act, including those relating to intermediaries.

6.5 Defamation

The term defamation is used to define the injury that is caused to the reputation of a person in the eyes of a third person. The injury can be done by words oral or written, or by signs or by visible representations. The intention of the person making the defamatory statement must be to lower the reputation of the person against whom the statement has been made.

Section 499 of the IPC defines defamation as any act of making or publishing any imputation concerning a person with

- The knowledge, or
- The intention; or
- The reason to believe

that such imputation will harm the reputation of such person.

There are certain exceptions set out in this section such as:

i. It is not defamation to impute anything which is true concerning any person, if it be for the public good

ii. It is not defamation to express in good faith any opinion respecting the merits of any public performance

The punishment of defamation is simple imprisonment for up to two years and/or with fine.

Invention of the internet has provided a medium to interact with the people worldwide. It has brought the world closer to every man. It has proved to be repository of the enormous information. It has also given new dimensions to business and trade. Social networking, entertainment, shopping, job hunt, recruitment, you name anything and its possible via the medium of internet. The widespread use of internet has also given a new medium to the bad elements to commit crime.

Cyber defamation is publishing of defamatory material against another person with the help of computers or internet. The harm caused to a person by publishing a defamatory statement about him on a website is widespread and irreparable as the information is available to the entire world. The following are mediums by which offense of cyber defamation can be committed:

- World Wide Web
- Discussion groups
- Intranets
- Mailing lists and bulletin boards
- E-mail

There are two broad categories falling under cyber defamation:

- The first category involves the cases in which the liability is of the primary publishers of the defamatory material, e.g. web site content providers, e-mail authors etc;
- The second category involves the cases involving the liability of the internet service providers or bulletin board operators.

STATUTORY PROVISIONS GOVERNING CYBER DEFAMATION IN INDIA:

INDIAN PENAL CODE, 1860

The Indian Penal Code, 1860 contains provisions to deal with the menace of cyber defamation:

1. Section 499 of IPC:

- Section 499 of IPC says that whoever, by words either spoken or intended to be read, or by signs or by visible representations, makes or publishes any imputation concerning any person intending to harm, or knowing or having reason to believe that such imputation will harm, the reputation of such person, is said, except in the cases hereinafter excepted, to defame that person.
- The offence of defamation is punishable under Section 500 of IPC with a simple imprisonment up to 2 years or fine or both.
- The law of defamation under Section 499 got extended to "Speech" and "Documents" in electronic form with the enactment of the Information Technology Act, 2000

2. Section 469 of IPC:

- Section 469 of IPC says that whoever commits forgery, intending that the document or electronic record forged shall harm the reputation of any party, or knowing that it is likely

to be used for that purpose shall be punished with imprisonment of either description for a term which may extend to three years and shall also be liable to fine.

- The phrase "intending that the document forged" under Section 469 was replaced by the phrase "intending that the document or electronic record forged" vide the Information and Technology Act, 2000.

3. Section 503 of IPC

- Section 503 of IPC defines the offense of criminal intimidation by use of use of emails and other electronic means of communication for threatening or intimidating any person or his property or reputation.
- Section 503 says that whoever, threatens another with any injury to his person, reputation or property, or to the person or reputation of any one in whom that person is interested, with intent to cause alarm to that person, or to cause that person to do any act which he is not legally bound to do, or to omit to do any act which that person is legally entitled to do, as the means of avoiding the execution of such threats, commits criminal intimidation

INFORMATION TECHNOLOGY ACT, 2000

The Section 66A of the Information Act, 2000 does not specifically deal with the offence of cyber defamation but it makes punishable the act of sending grossly offensive material for causing insult, injury or criminal intimidation.

Section 66A of the Information Act, 2000

Section 66A of the IT Act says that any person who sends, by means of a computer resource or a communication device:

- any information that is grossly offensive or has menacing character; or
- any content information which he knows to be false, but for the purpose of causing annoyance, inconvenience, danger, obstruction, insult, injury, criminal intimidation, enmity, hatred, or ill will, persistently makes by making use of such computer resource or a communication device,
- any electronic mail or electronic mail message for the purpose of causing annoyance or inconvenience or to deceive or to mislead the addressee or recipient about the origin of such messages shall be punishable with imprisonment for a term which may extend to three years and with fine.

Where to lodge a complaint?

A person aggrieved of the offence of cyber defamation can make a complaint to the Cyber Crime Investigation Cell. The Cyber Crime Investigation Cell is a branch of the Criminal Investigation Department (CID). Cyber Crime Investigation Cells have opened up in many cities like Delhi, Mumbai, Chandigarh, Hyderabad, Bangalore, Tamil-Nadu, Gurgaon, Pune, Madhya-Pradesh, Lucknow, etc. The Cyber Crime investigation Cells deal with offences related to the computer, computer network, computer resource, computer systems, computer devices and Internet. It also has power to look into other high-tech crimes.

Sale of Defamatory Matter

Section 500 of the IPC also makes it an offence to sell or offer for sale any printed or engraved substance knowing that such substance contains defamatory matter. The punishment for this offence is simple imprisonment for up to two years and/or with fine. Hence, an e-commerce portal may also be liable where

i. It advertises products containing defamatory matter irrespective;

ii. It itself sells any defamatory matter.

Very often e-commerce portals have inter-active / open platforms where users can post views and comments and interact with each other. Adequate steps should be taken to ensure that no defamatory comments are posted on such spaces.

6.6 Privacy

Under modern digital era, generating consumer information is inevitable. It is almost difficult to complete any online transaction without collecting some form of personal information of the users. Besides, e-commerce may also collect a variety of other indirect information such as users' personal choices and preferences and patterns of search. Though some companies use the personal information they obtain to improve and provide more services to consumers, many companies use the information in an irresponsible manner. Hence, an important consideration for every e-commerce platform is to maintain the privacy of its users. Two primary concerns that a user of e-commerce platforms would have are:

i. Unauthorized access to personal information

ii. Misuse of such personal information.

Historically, the concept of privacy and data protection were not addressed in any Indian legislation. In the absence of a specific legislation, the Supreme Court of India in the cases of Kharak Singh vs State of UP and People's Union of Civil Liberties vs the Union of India recognised the “right to privacy”. However, a right under the Constitution can be exercised only against any government action. Non-state initiated violations of privacy may be dealt with under principles of torts such as defamation, trespass and breach of confidence.

In countries that do provide legal protection for consumer privacy, it is never protected as an absolute right. Consumer privacy is not considered an absolute right for three reasons:

1. What constitutes consumer privacy is culturally, contextually, individually defined
2. Consumer privacy often conflicts with other market rights
3. The ownership of a consumer's private information is debated — as consumers believe they own the information and businesses believe they own the information.

To understand consumer privacy, it is useful to outline the privacy expectations and strategies of both consumers and businesses and to examine the protection measures taken by firms to safeguard consumer information. The major privacy concerns held by consumer's can be broken down into three main domains:

1. Consumers want to be informed about the type of information that is being collected from them.
2. Consumers need to know that they a certain degree of control over the personal information that is being collected.
3. Consumers need to be assured that their personal information will be secure and will not be abused or stolen.

Though privacy has been defined by many as the "right to be let alone", its application in today’s modern world is not that straightforward. We live in a world where our purchasing behaviour, both online and offline, is shared and used invisibly.

For instance, if an individual uses a social networking site, it is possible for a third party application to access personal information that is shared. Similarly, if an individual uses a warranty card or loyalty card during a purchase, it is possible for third parties, like data brokers, to collect and use the individuals' personal information.

The IT Act deals with the concept of violation of privacy in a limited sense; it provides that the privacy of a person is deemed to be violated where images of her private body areas are

captured, published or transmitted without her consent in circumstances where she would have had a reasonable expectation of privacy and prescribes a punishment of imprisonment of up to 3 years and/or fine of up to INR 2 lakhs.

Breach of Privacy in Information Collection

Internet users often fear the loss of personal privacy, because of the ability businesses and their websites have to collect, store and process personal data. For example, after collecting user information, the sites match the data with their personal and demographic information to create a profile of the user's preferences which is then used to promote targeted advertisements or provide customized services. There are two ways in which sites can collect information:

1. Sites collect information directly through server software. Sites often use automatic software logs to do this.
2. A third party extracts information from the site without the consumer's knowledge. Sites often place cookies on websites to extract user information.

Automatic software logs and third party cookie placement are two overlooked aspect of information collection. Cookies work by collecting personal information while a user surfs the net and then feeds the information back to a Web server. Cookies are either used to remember the user or are used by network advertising agencies to target product advertisements based on long term profiles of user's buying and surfing habits. An example of a website that uses cookies is 'double click'. Web bugs are used by advertising networks to add information to the personal profiles stored in cookies. Web bugs are also used in junk email campaigns to see how many visits the site gets. Cookies and web bugs are just two out of hundreds of technologies used to collect personal information.

6.7 Formation of an E-Contract

The growth of e-commerce has resulted in the formation of legally enforceable online contracts. It is a paperless contract. So, evidence that exists in traditional contracts may not exist in e-commerce contracts. To get compensation in case of disputes, the existence of an e-commerce contract must be proved.

The most common forms of e-contracts are click wrap, browse wrap and shrink-wrap contracts. In each case, the terms and conditions of the contract are made available to the contracting party in a form that is significantly different from the usual paper contracts.

- In case of a click wrap contract, the contracting party's affirmative acceptance is taken by means of checking on an 'I accept" tab. Also, there is typically a scroll box that allows the contracting party to view the terms and conditions.
- A browse wrap agreement is intended to be binding on the contracting party by the mere browse of the website.
- Shrink wrap agreements though not directly relevant to e-commerce platforms are relevant in the context of e-commerce mostly because of the kind of goods associated with shrink-wrap agreements. Under this agreement the contracting party can read the terms and conditions only after opening the box within which the product is packed.

Validity of Online Contracts

In India, e-contracts like all other contracts are governed by the basic principles of the Indian Contract Act, 1872 which inter alia mandate certain pre-requisites for a valid contract. In this context it is important to note that the Information Technology Act, 2000 provides fortification for the validity of e-contracts.

Essentials of a valid contract under the Indian Contract Act are as follows:

- Agreement enforceable by law
- Free consent of the contracting parties;
- Lawful consideration for the contract;
- Parties should be competent to contract;
- The object of the contract should be lawful

Unless expressly prohibited under any statute, e-contracts like click-wrap agreements would be enforceable and valid if the requirements of a valid contract as per the Indian Contract Act are fulfilled. Consequently the terms and conditions which are associated with an e-commerce platform are of utmost importance in determining and ensuring that e-commerce transactions meet with the requirements of a valid contract.

The IT Act, however, is not applicable in relation to negotiable instruments, power of attorneys, trust, will, contracts for sale or conveyance of immovable property. Now important provisions relating to e-contacts are discussed below:

A. Signature Requirements

There is no requirement under the Indian Contract Act to have written contracts physically signed. However, specific statues do contain signature requirements. For instance the

Indian Copyright Act, 1957 states that an assignment of copyright needs to be signed by the assignor. In such cases, the IT Act equates electronic signature with physical signature. An electronic signature is supposed to be issued by the competent authorities under the IT Act.

B. Contracts with Minors

The very nature of e-commerce is that is virtually impossible to check the age of anyone who is transacting online. This may pose problems and liabilities for e-commerce platforms. The position under Indian law is that a minor is not competent to enter into a contract and such a contract is not enforceable against the minor. The age of majority is 18 years in India.

C. Stamping Requirements

Every instrument under which rights are created needs to be stamped under the specific stamp duty legislations in India. An instrument that is not appropriately stamped may not be admissible as evidence before a competent authority unless the requisite stamp duty and the prescribed penalty have been paid. In some instances criminal liability is associated with intentional evasion of stamp duty.

Whether Standard-form Online Contracts are Unconscionable

In India there does not seem to be well developed jurisprudence on the issue of whether standard form online agreements are unconscionable. However, Indian laws and Indian courts have dealt with instances where terms of contracts (including standard form contracts) were negotiated between parties in unequal bargaining positions. Certain provisions under the Indian Contract Act deal with the unconscionable contracts such as when the consideration in the contract or the object of the contract is opposed to public policy. If the consideration or object of the contract is opposed to public policy, then the contract itself cannot be valid.

In case of unconscionable contracts, the courts can put a burden on the person in the dominant position to prove that the contract was not induced by undue influence. Section 16(3) of the Contract Act provides that where a person who is in a position to dominate the will of another, enters into a contract with him, and the transaction appears, on the face of it or on evidence adduced, to be unconscionable, the burden of proving that such contract was not induced by undue influence shall lie upon the person in a position to dominate the will of the other.

Section 23 of the Contract Act provides that the consideration or object of any agreement is unlawful when:

- It is forbidden by law, or
- Is of such a nature that if permitted, it would defeat the provisions of any law; or
- Is fraudulent, or
- Involves or implies injury to the person or property of another, or

Formation of Online Contracts

Section 11 to 13 of the IT Act relate to formation of an online contract between two parties that is solely mediated electronically. The originator of an electronic record sends it as a message, which is deemed to have been received by the addressee, if he sends an acknowledgement or conducts him in a manner so as to let the originator know that the message has been received by him. The two parties can agree on the formation of the contract depending on whether the acknowledgement of receipt of the electronic record by the addressee has been stipulated as a condition by the originator. If it has been mandated then the contract will be deemed to be formed only after receipt of the acknowledgement from the addressee. Alternatively, if the originator does not receive any acknowledgement nor any indication that the addressee has received the electronic record sent by him, the originator, he can re-transmit the message stating the timeframe by which the acknowledgement should come, failing which the originator can treat the electronic record as thought it had never been sent.

The time of dispatch of the electronic record is deemed to be the time at which the electronic record enters a computer resource outside the control of the originator. Likewise, the time of receipt of an electronic record is taken to be the time it enters the computer resource designated by the addressee. These sections further clarify that the place of business of both the parties will be taken to be the place where the electronic record will be deemed to have originated and received respectively. This will be the case irrespective of where the computer resources of both parties may be located.

It is very difficult to trace evidences regarding cyber crimes. Electronic evidence is fragile and can be easily modified. Cyber attackers may destroy the electronic evidences. The challenge lies in devising techniques to gather evidence and producing it effectively before a court so that the cyber criminals brought to justice. This area of crime analysis is called cyber

forensics. There are two distinct areas of cyber forensics: (i) Computer forensics and (ii) Network forensics.

- Computer forensics deal in gathering of evidence from computer media seized at the crime scene. They involve recovering deleted files, searching slack and free space and preserving the collects information for litigation purposes. In this case, evidence resides on computer systems, essentially under the system and slack space.
- Network forensics is technically more challenging. They gather digital evidence that is distributed across large scale, complex networks. Often this evidence is transient in nature and is not preserved within permanent storage media. Network forensics deals primarily with an in-depth analysis of computer network. Evidence in this case resides on routers and other network devices.

6.8 Tax issues

E-business does not have a physical presence and certain goods are not delivered physically. An online seller can easily sell to customers throughout the world from a single physical location. Goods are delivered across geographical boundaries. The customer and the seller of the goods may stay in a different place or a country. This raises tax issues. Where the profits should be taxed? Location factors primarily raise tax issues at the international and State levels. E-Commerce allows certain products like software, newspaper to be delivered through internet. It raises tax issues regarding the type of revenue generated. The proof of identity of the user is also very weak in e-commerce transactions. Today, certain goods are sold at auction through intermediaries. It raises taxation issues globally.

Taxation for E-Commerce - A Global Perspective

E-business taxation is an intriguing concept. It crosses nine trillions. In these circumstances, it seems an imperative for revenue authorities to examine the approach and policy towards taxation of e-commerce more comprehensively than they have to date.

The development of electronic commerce modifies the way of doing business. E-commerce occurs in various forms and between various entities in the market. One among the question faced by nations is how to tax it. As the internet crosses the boundaries the main challenges are how the basic requirements of physical presence, place of establishment and substantial nexus criteria of taxation can be met. Due to the uniqueness of e-

commerce, taxation faces a number of problems. It is also worried that if this is left untaxed, it will give rise to a parallel economy.

For centuries, traditional business around the world has been based on two concepts:-

1. Physical presence; and
2. Physical delivery of goods and services.

Today physical presence is no longer necessary to perform activities and physical transactions are replaced by bytes of data. Since electronic commerce can be conducted virtually instantaneously around the globe and around the clock, where the profits should be taxed becomes crucial issue. Thus, taxing the Internet is a global issue.

Need for taxation

The development of e-commerce has revolutionized the way business operates. It has also challenged the adequacy and fundamental validity of principles of international taxation which are the basis of asserting tax liability.

Business conducted through the internet caters to globally located customers and involving in cross border legal issues. Transactions that may be legal and valid in one jurisdiction may not be enforceable in others. Creation of wealth through cyber space would also entail the use of "offshore" financial institutions to store this wealth. This results in an elaborate and untraceable form of tax avoidance. Taxing rights must be based on mutually agreed principles and a common man's understanding of how these principles should be applied.

A taxpayer is generally taxed on its worldwide income in the country of its residence. Generally tax treaties restrict the use of domestic source rules by requiring a minimum nexus to allow taxation in that jurisdiction. Thus, taxation of business income on the basis of the source rule requires the presence, in the country of source. Where the income or capital is taxed in the country of source, the country of residence has the obligation to give relief from double taxation.

Taxation for Internet Transaction

The Internet has changed many of the fundamental concepts of taxation. Governments are faced with the various issues of taxation raised by e-commerce. This is because of lack of comprehensive understanding of:

- The communication technologies
- The complex nature of business offered through Internet business, etc.

• The modus operandi of Internet business, etc. has made the operation of tax legislations more difficult.

Basic Principles of Taxation

Several basic principles form the foundation of taxation policy in any country. The most important of these principles are **efficiency, equality, certainty and positive economic effect**.

The **efficiency principle** encompasses notions of both fiscal and economic efficiency. An economically efficient tax system should be neutral and not influence one's economic behaviour simply because of the manner in which the tax is levied.

An ideal tax system is also **equitable** in its application. Not only does it treat taxpayers in similar economic circumstances similarly but also it makes suitable distinctions in its treatment of those in different economic situations.

It necessarily raises questions of "similar economic circumstances", **certainty** in the tax laws is a fundamental principle in the establishment of ideal tax structure because predictability of tax consequences is an essential component of other basic tax principles.

Finally, taxation has always been a mechanism for stabilisation and regulation of the economy. Recognising this fact, legislature has emphasised the **economic effects** of the principle of taxation, with a particular focus on encouraging economic growth.

For the development of rational tax policy one should understand the nature of industry. Some of the peculiarities of Internet are".

• It is a network of networks and it cannot be controlled or owned by one person.

• This network of networks is capable of rapidly transmitting packets from one computer to another.

• No human involvement is necessary to transmit data from one computer to another.

• The Internet can re-route itself if one computer is connected to the net. Content wise the Internet is very rich.

• The world-wide web environment provides a user friendly graphical interface.

• A simple click is sufficient to obtain vast information anywhere in the World.

• It encompasses all territorial and geographical limitations

Keeping these unique qualities of the Internet in mind one should try to visualise the issues concerning the taxes on the net.

The problems with online transactions, as perceived by tax collecting authorities include:

- Inability to identify a transaction
- Encryption of transaction
- Collecting the tax from millions of end-users rather than a small number of intermediaries.
- Difficulties in determining where a product is produced or consumed.
- Definition of goods and services and
- Distinctions between types of services

The well -planned tax system in India with the authority to levy taxes is divided between the Central and State Governments.

- Central Government collects direct taxes like personal income tax, corporate tax
- State Governments collect local and state sales tax.

In India the tax policies should be carefully formulated based on a policy that is clear and transparent and is consistent with the international norm of characterisation of revenues. The Government should honour the principle of neutrality as laid down by the OECD in characterisation of income from e-commerce transactions.

India has signed tax treaties with various countries. These are mainly based on OECD. These treaties are making it mandatory to reduce the loss of income due to double taxation and also to give relief to Indian Assesses from double taxation. Taxation of e-commerce has become a major concern for international agencies and tax authorities worldwide. The recent report of OECD paved way for a statement of broad taxation principles that should apply to e-commerce as reported in "The Economic Times" dated, 3rd June, 2000.

"All double **taxation** avoidance treaties to be reviewed". In sum and substance, same principles of conventional **taxation** should apply to e-commerce.

Neutrality - Taxation should be neutral and equitable between different forms of e-commerce and thus, avoiding double **taxation** or international non-**taxation**.

Efficiency - Compliance costs for business and administration costs for the Governments should be minimised as far as possible.

Certainty and Simplicity-Tax rules should be clear and simple to understand so that tax payers know where they stand.

Effectiveness and fairness - Taxation should produce the right amount of tax at the right time, and the potential for evasion and avoidance should be minimised.

Flexibility - Taxation system should be flexible and dynamic to ensure that they keep pace with technological and commercial developments.

These principles can be applied through existing tax rules and there should be no discriminatory tax treatment of e-commerce.

Challenges before Tax authorities

Major challenges regarding e-commerce are:

(i) Identifying the tax payer, especially when an Internet user is involved.

(ii) Identifying audit risks and developing audit trials to ensure compliance.

(iii) Obtaining access to verifiable information and documents.

(iv) Obtaining access to encrypted data

(v) Developing a response to the advent of electronic money (e-cash) and ensuring efficient mechanism for collecting tax especially from non-resident tax payers.

There is a need for initial inter-government and multi-jurisdictional co-operation and agreement to synchronize the **taxation** treatment.

Legislative Approach

The Government of India had set up a committee to go into the various questions regarding taxation of e-commerce. The Kanwarjit Singh committee, submitted its report to the Central Board of Direct Taxes and it has made certain recommendations on e-commerce and taxation. Government is making effort to create a balance between economic growth and generation of revenue in the InfoTech global environment. The issues raised by e-commerce taxation are complex and the subject is controversial in nature because it has created serious conflict of interest between developed and developing nations. Unique features of interest also add to the existing confusion.

Income Tax Act, 1961 is silent about e-commerce taxation. The only existing agreements in this area are OECD Model Treaty and United Nations Model Treaty. Thus, India has got no legislation to deal with e-commerce taxation.

The structure of software industry involves transnational transactions, which attract transactions provisions of more than one country thereby, leading to double taxation of companies involved in such transactions. All counties try to avoid such double taxation by

entering in to DTAAS. However, there is still a need on the part of all countries to come together and form an internationally accepted uniform model for tax reforms. In order to bring Indian tax system in line with the International Tax System some big changes are required. India has already seen transformation in its tax structure. There is a lot more to be done to make sure that Indian IT industry is not hindered by tax related issues.

On a larger perspective, the base of tax system should be broadened. It should also be simple within the administrative capacity of the Government. The Government tries to enhance its revenue while tax payers oppose any increase in tax rates. Therefore, there has to be a line of demarcation which the Government will have to follow because exclusive taxes do not reflect positive indications for the growth of any economy and may act as restriction for those entering the Indian market.

6.9 Domain Names

A company that commences e-commerce activities would at first have to get its domain name registered. A domain name is an address on the internet like www.ebay.in and www.google.com. In more technical terms a domain name is an easily recognizable and memorable name to the Internet Protocol resource (which is typically a set of numbers) of a website. **A name that identifies an Internet Website is a domain name**. Domain Names always have two or more parts, separated by dots. The part on the left is the most specific and the part on the right is the most general. A company takes its domain name from the Regisrry in its name. Thus, the company which registers its name first for the domain name eliminates all others from using that name in cyberspace. Domain names are argued in the USA and UK as a domain name functions as a trademark. Therefore, if a person or company not entitled to the trademark, yet it uses the domain name, it is guilty of trademark infringement.

Domain names normally fall within the purview of trademark law. A domain name registry will not register two identical domain names but can register a similar domain name. This leads to a situation where deceptively similar domain names can be registered for example www.goooooooogle.com by a third party. Any person visiting www.goooooooogle.com might think that the content on this website belongs to or it has been sponsored by Google. In such cases trademark law comes to the rescue of Google.

Further, while registering domain names, if the company chooses a domain name that is similar to some domain name or some existing trademark of a third party, the company could be

held liable for cyber squatting. Indian courts have been proactive in granting orders against the use of infringing domain names. In fact in the case of Satyam Infoway Ltd. v. Sifynet Solutions Pvt. Ltd., the Supreme Court had also held that "a domain name may pertain to the provision of services within the meaning of section 2(z) of the Trade Marks Act, 1999.

Enforcing IP - Liability for Infringement of IP

The issue of liability for infringement of IP gets even more complicated with the vastness of the internet world which makes the duplication, or dissemination of IP protected works easy and instantaneous and its anonymous environment makes it a challenge to detect the infringer. Moreover, infringing material may be available at a particular location for only a very short period of time. In determining the possible liability that could arise for infringement of an IP, the fact IP protection is territorial in nature needs to be emphasized. What amounts to an infringement varies for each form of IP? There are a host of factors that a court would consider in deciding whether or not there is an infringement of copyright.

Some of the most common forms of liability for infringement in India would be:

- Injunction (temporary or permanent) against the infringer stipulating that the infringing activity shall not be continued.
- Damages to the extent of lost profit or damages to remedy unjust enrichment of the infringing party.
- Order for accounts of profits
- Order for seizure and destruction of infringing articles.

In addition to the civil remedies, some of the IP laws contain stringent criminal provisions relating to offenses and penalties such as imprisonment of up to three years for applying for a false trademark, knowingly infringing a copyright and for applying for a false geographical indication.

CERT-In

The Indian Computer Emergency Response Team (CERT-In) was established in 2003 as a part of the international CERT community. It was set up with the specific purpose to respond to computer security incidents reported by the entire computer and networking community in the country. CERT-In was established with the objective to enhance the security of India's communication and information infrastructure. Its responsibility is to improve cyber security in the country and it shall adopt proactive action and effective collaboration. The purpose of CERT-

In is to become the nation's most trusted referral agency for the Indian community. Its purpose is to respond to computer security incidents as and when they occur. CERT-In will also help members to reduce the risks of computer security incidents.

Jurisdiction Issues

Internet communication does not have geographical boundaries. Different laws are applicable under different jurisdictions. E-commerce transactions are conducted beyond geographical boundaries. In some of the transactions, the buyer may live in one country and the seller may live in another country.

Thus, the use of Internet to make contracts, to transmit computer files may subject the defendant to jurisdiction in foreign states. Some companies have added to their website terms and conditions requiring that any dispute must be taken up at a certain venue. Hence, people entering transactions in different countries must go through the terms and conditions of the contract.

Service Provider Liability

Many ISP users access to shared websites, Usenet news, e-mail distribution lists, etc. These facilities can be used by their users to upload unlawful, defamatory and copyright or trademark infringing material, pornography and obscene material, without the ISP having a chance to review it. An ISP could be held liable for the bulletin boards and for helping and abetting the commission of an offence such as the distribution of pornography. Network service providers will not be liable for any third party information or data made available by them if they can prove that the offence or contravention was committed without their knowledge.

6.10 Summary

Regulations to monitor activities over the Internet must be implemented in order to keep pace with the new advances in information technology. Given the global nature of the Internet, entering into a contract and doing business online is not as secure as the traditional method of contracting. Another challenging issue for e-business is the security of the online contracts. One way to make these contracts secure is by legally recognizing electronic signatures as legitimate mechanisms for authenticating non-face to face electronic transactions. A dedicated e-commerce law of India is urgently required and Indian websites must be suitably regulated. Indian government must also formulate a techno legal framework to take care of complicated technology related legal issues in India. The result is passing of Information Technology Act,

2000 and later on Information Technology (Amendment) Act, 2008. This unit highlights the important provisions of both these Acts. The provisions of Copyrights, defamation, domain names, taxation issues, etc are explained in detail.

6.11 Key Terms

Copyright: It means the exclusive right to do or authorize the doing of any of the following acts in respect of a work or any substantial part thereof.

Plagiarism: It is the act of stealing and passing off the ideas, words, or other intellectual property produced by another as one's own.

Defamation: It is used the injury that is caused to the reputation of a person in the eyes of a third person.

Domain name: A name that identifies an Internet Website

6.12 Self Evaluation Questions

1. Give an account of legal framework of e-commerce in India.
2. Elucidate the important provisions of Information Technology Act, 2000
3. Highlight the important amendments of Information Technology Act, 2008
4. What are not included within the scope of Information Technology Act, 2000?
5. List out the cyber crimes as per the provisions of Information Technology Act, 2000
6. State the cyber crimes that generally occur in an organization
7. Write a note on digital signature
8. What do you understand by electronic signature?
9. What are Cyber Security Issues of E-Commerce Business in India?
10. What is Copyright?
11. What is Defamation?
12. What is Plagiarism?
13. What is domain name?
14. State the mediums by which offense of cyber defamation can be committed?
15. Describe the statutory provisions covering cyber defamation in India
16. Discuss the provisions relating to cyber defamation under Information Technology Act,2000
17. What is E-contract?
18. Explain various forms of E-contracts.
19. Explain the provisions regarding E-Contracts under Information Technology Act, 2000
20. What are the basic principles of taxation under e-commerce?
21. Enumerate the taxation issues under e-commerce business
22. Write a note on CERT-In
23. Write a note on Service Provider Liability

UNIT – VII

E-Security

Learning Objectives

After studying this unit, students would be able to understand

- The concept of E-Security
- Dimensions of Security Design
- Firewalls and system integrity
- Virus protection
- Protection from intruders

Contents

7.1 Introduction

The term "e-security" is often interchangeable used with other terms such as "internet security", "cyber security", and / or "IT Security". Broadly "e-security encompasses security aspects of the information economy, including information systems and communications networks".

E-Security is a branch of computer security specifically related to the Internet, often involving browser security but also network security. Its objective is to establish rules and measures to use against attacks over the Internet. The Internet represents an insecure channel for exchanging information leading to a high risk of intrusion or fraud, such as phishing. Different

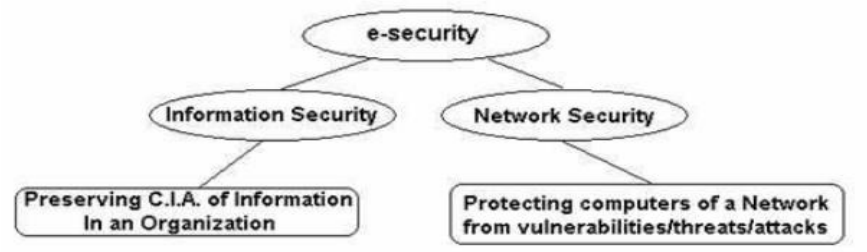
methods have been used to protect the transfer of data, including encryption. Like that, there are benefits associated with the popularity of the Internet and ever-increasing growth rate of the computers being connected to it. But there is a down side too. The task of protection of the data and information stored in the computers and travelling across the Internet has never been so challenging. Therefore, Computer and Internet Security has become a specialized area in itself. The internet provides great opportunities for business but, with those opportunities come some e-security risks. Intruders can install malicious software such as spyware and viruses, which can steal sensitive business information and slow down the computer, intercept financial transactions, steal credit card details and access customer information, steal download limit without your knowledge and at your cost, take over your website and modify it and Steal sensitive business information by using a portable device.

7.1.1 Concept of E-Security:

E-Security is a part of the Information Security framework and is specifically applied to the components that affect e-commerce that include Computer Security, Data security and other wider realms of the Information Security framework. E-commerce and network security are not simple; diligence is needed to prevent loss.

E-security or Information security is also protection of information against unauthorized disclosure, transfer, modifications, or destruction, whether accidental or intentional. E-Security is the method of securing internet systems from malicious use. It deals with the security of the information (in electronic form) that travels over the Internet. So e-security involves securing both the information as well as the network through which the information flows.

7.1.2 Pictorial concept of E-security



7.1.3 Importance of E-commerce security:

Companies are doing more and more business on the Web as interactions become faster and less expensive. However, there are many security concerns. Authentication (who is the user) authorization (permission to do what they want), data integrity and encryption (accessing information that cannot be altered or read in transit), accountability (can be held responsible for their actions) and notarization (can make agreements with sites that are legally enforceable) are to be considered.

E-security is an important one to businesses and governments today. In an enterprise, a security exposure might result in possible damage in the organizations information and communication systems. Example of exposure includes unauthorized disclosure of information, modification of business or employer's data and denial of legal access to the information system.

E-security addresses the security of a company, locates its vulnerabilities and supervises the mechanisms implemented to protect the on-line services provided by the company, in order to keep adversaries (hackers, malicious users and intruders) from getting into the company's networks, computers and services.

Thus, in order to protect the critical information in electronic form belonging to any private or public sector organization, we need to employ the e-security measures.

7.1.4 Common e-commerce pitfalls

The security of e-commerce transactions is a critical part of the ongoing success and growth of E-commerce. Inadequate security could result in the loss of customer confidence or the non-availability of site. The pitfalls in e-security are:

1. Hackers gain access to information

Inadequate security enables hackers to gain access to sensitive business data (price lists, catalogues, intellectual property, etc). The motives may be malicious or to gain competitive knowledge. Hackers may also gain access to the information of your business or customers with a view to committing fraud.

2. Loss of customer confidence

Security breaches can damage the confidence of customers in e-commerce service. A lack of customer confidence is fatal to the success of online venture.

3. Denial-of-service attacks

Denial-of-service attacks prevent access to authorized users, so that the site is forced to offer a reduced level of service or cease operation completely.

4. No contingency measures in place

The increase in e-commerce and the rapid rise of the mobile device usage in e-commerce also increases the threat of cyber crimes. Contingency planning puts measures in place that enable the systems to continue operating in a crisis.

7.1.5 Need for E-Security:

The areas which need security are network security and intrusion detection.

Network security

Network security includes systems that protect networks, such as a local area network (LAN) or wide area network (WAN). Different techniques are used to create a trusted zone in these networks. Firewalls protect the network by permitting only specified traffic to enter it from the outside (from the Internet, for example). In large organizations, firewalls also separate internal networks from each other, keeping an intruder in one network from gaining access to another or preventing unauthorized access by employees to certain files. Firewalls divide the information technology world into two parts: the inside, trusted zone and the outside, untrusted zone. To work effectively, firewall rules and policies must support your business.

Intrusion Detection

Intrusion detection provides additional layers of protection. It can detect and register suspicious activity, alert appropriate personnel and block the anomalous behaviour on the network or its hosts. It varies vary from broad, multipurpose tools to highly specialized tools that look for specific features. An example of a broad tool is a network sniffer. Sniffers were developed for administrators needing to troubleshoot problems, but they were quickly adapted by hackers to access information such as passwords and files.

7.1.6 E-Security Tools:

The tools which are used to secure e-commerce are:

- Firewalls-hardware and software
- Digital Signatures
- Digital Certificates

- Passwords
- Public key infrastructure
- Encryption Software
- Biometrics-retinal scan, fingerprints, voice, etc.
- Locks & Bars

7.2 Security for E-Commerce

As business activity grows on the Internet, security is becoming an important consideration to take into account and to address, to the stakeholders' satisfaction. Security is an essential part of any transaction that takes place over the internet. Customer will lose faith in e-business if its security is compromised. E-Commerce Security deals with the protection of E-commerce assets such as computers and networks from unauthorized access, use, alteration or distribution. Anything that can cause danger to the e-commerce assets are considered to be threats. Systems that are connected to the internet are the targets for destruction / tampering of the data stored in them. Certain threats may result in severe financial loss and others may result in loss of reputation to an individual and to an organization. With the growing internet use, such incidents would result in loss of trust in computer and networks and also decline the growth of public confidence in internet. In this context security relates to three general areas:

- Secure file / information transfers
- Secure transactions
- Secure enterprise networks, when used to support Web commerce

7.2.1 Fundamentals of Computer Security

Computer security has several fundamental goals

- **Confidential** − Information should not be accessible to unauthorized person. It should not be intercepted during transmission.
- **Integrity** − Information should not be altered during its transmission over the network.
- **Availability** − Information should be available wherever and whenever requirement within time limit specified.
- **Authenticity** − There should be a mechanism to authenticate user before giving him/her access to required information.

- **Non-Reputability** − It is protection against denial of order or denial of payment. Once a sender sends a message, the sender should not able to deny sending the message. Similarly the recipient of message should not be able to deny receipt.
- **Encryption** − Information should be encrypted and decrypted only by authorized user.
- **Auditable** − Data should be recorded in such a way that it can be audited for integrity requirements.
- **Fraud** – Another issue to be tackled is just plain fraud, where the buyer simply supplies Out-of-date or incorrect credit card information.

7.3 Security Design

All security solutions need to begin with a policy. Some basic security policy questions that must be answered are:

- What components are most critical but vulnerable?
- What information is confidential and needs to be protected?
- How will confidentiality be ensured?
- What authentication system should be used?
- What intrusion detection systems should be installed?
- Who has authority and responsibility for installing and configuring critical e-business infrastructure?
- What plans need to be in place to ensure continuity or minimum disruption of service?

A viable security policy should have the following characteristics:

- The policy must be clear and concise
- The policy must have built-in incentives to motivate compliance
- Compliance must be verifiable and enforceable
- Systems must have good control for legitimate use: access, authentication, and authorization
- There must be regular backup of all critical data
- There must be a disaster recovery and business continuity plan

7.3.1 Measures to ensure Security

Major security measures are following:

- **Encryption** − It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret

code and specified receiver only can decrypt the data using the same or different secret code.

- **Digital Signature** − Digital signature ensures the authenticity of the information. A digital signature is a e-signature authentic authenticated through encryption and password.
- **Security Certificates** − Security certificate is unique digital id used to verify identity of an individual website or user.

7.3.2 Stages in E-security design

A six-stage security design is discussed below:

Stage – I: Developing corporate risk consciousness and management focus

For any security to work well there has to be a strong organizational foundation. Both management and employees must have a keen sense of how their interests and the fortune of the organization depend very strongly on their ability to safeguard their information resources.

Stage – II: Performing Risk Assessment

Risk Assessment is based on identifying threats, vulnerabilities and cost. A simple equation can be used to represent this process:

Risk = (Threat x Vulnerability x Cost of business disruption) / (Cost of Countermeasure)

Stage – III: Devising a systematic risk-management based e-business security policy

Security policy is the first tangible evidence of a credible security system. Every organization must have a comprehensive security policy. The policy must address each system component, internal and external threats, human and machine factors, managerial and non-managerial responsibility. The security policy has the six objectives of e-business security: confidentiality; integrity; availability; legitimate use, auditing, and non-repudiation.

Stage – IV: Implementing Best Practices in Securing E-Business Infrastructure

This is the area of security risk management that is mainly a technology issue. Each component has to be addressed with a view to implementing a complete e-business secure infrastructure. Important elements will include cryptography, PKI and digital signature technology. The best practice is one that is not only impressive in its design and implementation but one that can be optimal. A best practice will be a cost-effective that is commensurate with the perceived information security risk of the organization.

Stage – V: Analyzing, Assessing and Insuring Residual Risk

Once the best practices are in place and certified, any risk that is not covered must be addressed by means of an insurance mechanism. Those risks need to be further assessed in terms of the probability of the events and the subsequent financial impact on the organization.

Stage – VI: Monitoring and revising the system

Implementing effective e-business security is a dynamic process. The technology is changing very fast and so are the threats and vulnerabilities. Creating a security and risk management culture is a slow process. It is necessary to establish an effective monitoring and feedback system in order to determine the efficacy of the security policy.

7.4 Analysing the Risks

Irrespective of the size of business, there are things that can make the use of the Internet more secure. First, undertake a risk assessment, taking into account how you use or plan to use the Internet. Consider the types of transactions conducted, and identify the associated risks. These could include fraud, impersonation and theft. Then assess the magnitude of these risks, focusing on the potential for damage to the business. Finally, identify how to manage these risks, that is, the specific measures to protect against them.

The risk management measures will depend on the plan to use the Internet. If internet is used to send and receive email and access information only, the measures may be more basic. They could include:

- installing protective anti-virus and personal firewall software
- ensuring that you keep the software up to date by installing software 'patches'
- using passwords that cannot be easily guessed, with a combination of letters, numbers and symbols
- exercising caution when opening attachments to email.

If advanced e-commerce capabilities are required, such as an online catalogue with transaction facilities, more sophisticated protective measures are to be taken. Developing a formal IT security policy for operations and a response plan for computer security incidents may become necessary. Some organizations choose to outsource their security arrangements to specialist service providers.

If you are implementing an advanced e-commerce capability, you will need to consider arrangements for authenticating your trading partners and securing your transactions. There are

many different types of technology, which can help you do this, some of which you will already be familiar with. The most common kind that almost everyone uses is a plastic card and Personal Identification Number (PIN) to access funds in a bank account.

Broadly speaking, authentication relies on one or more of the following:

- Something you know (such as a Password or PIN)
- Something you have (such as a smart card or a hardware token)
- Something you are (such as a fingerprint or iris scan).

It is important to note that authentication is not the same as security. Authentication must operate in conjunction with an organization's overall security framework.

Anecdotal evidence indicates that the main risks associated with e-commerce concern hackers, viruses, and interception of credit card numbers travelling over telecommunication lines. Risks are in three primary areas: information risks, technology risks, and business risks.

7.4.1 Types of Risks:

1. **INFORMATION RISKS** stem from information published and contained in web sites and associated with the conduct of e-commerce.

   Examples of Information Risk

- Content on web page exposing web publisher to libel, defamation of character, slander
- Copyright infringement and invasion of privacy suits stemming from posted textual content
- Copyright infringement and invasion of privacy suits stemming from digital scanning and morphing
- Copyright, patent, or trade secret infringement violations by material used by web site developers
- After unauthorized access to a web site, online information about employees or customers is stolen, damaged or released without authorization
- Electronic bulletin boards containing defamatory statements resulting in liability or embarrassment
- Worldwide legal exposure resulting from use of creative material (e.g. names, likenesses) that violate laws of countries outside of the home country
- Credit card information intercepted in transit is disclosed or used for fraudulent purposes

- Information that has been changed or inserted in transmission is processed leading to erroneous results
- Flight of intellectual property due to employees moving to competitors

2. **TECHNOLOGY RISKS** include risks involving hardware, software, telecommunications and databases. It results from the misuse of technology or inappropriate use of technologies.

Examples of Technology Risk

- Negligent errors or omissions in software design
- Unauthorized access to a web site,
- Infecting a web site with computer viruses
- Internet service provider (ISP) server crashes
- Software error and omission risks causing unauthorized access
- Software content risk that violates a copyright or is libelous.
- Third party intercepts credit card information in transit causing breeches in security for online payments.
- Intercepting and copying or changing non-credit card information during transmission
- Insufficient bandwidth to handle traffic
- Obsolete hardware or hardware lacking the capacity to process required traffic
- Risk due to excessive ISP outages or poor performance
- ISP phone numbers being busy
- ISP or home-company servers being down
- Scant technical infrastructure to manage cycle time to develop, present, and process web-based products
- Risk of improperly integrating e-commerce system with internal databases
- Risk of improperly integrating e-commerce system with internal operational processes
- Risk due to poor web site design manifesting themselves in long response times

Inability of customer or supplier computers to handle graphical downloads

3. **BUSINESS RISKS** are concerned with customer and supplier relationships and risks associated with products and services marketed and distributed over the Internet. They also include risks associated with managerial aspects of the business including personnel and contractual relations.

Examples of Business Risk

- Web page content exposes web publisher to libel, defamation of character, slander
- Electronic bulletin boards containing defamatory statements resulting in liability
- Worldwide legal exposure resulting from use of information in violation of home-country laws
- Using web sites to conduct illegal promotional games, such as a sweepstakes or contests
- Risks related to payment to web site developers and disputes between developers and clients
- Lack of maintenance on existing web pages
- Impact on business due to intellectual property lost due to employees moving to competitors
- Changes in supplier relationships re: data access, data ownership, distribution strategy, and marketing tactics
- Changes in customer relationships re: data access, data ownership, distribution strategy, and marketing tactics
- Products out-of-stock due to poor communication with operations
- High shipping costs required for distribution
- Inconvenient return policies -- lack of coordination with physical system
- Excessive dependence on ISP to support firm's business strategy
- Inability to manage cycle time for developing, presenting, and processing web-based products
- Risk due to unprotected domain names which are usurped by other organizations
- Improperly integrating e-commerce systems with internal operational processes
- Insufficient integration of e-commerce with supply chain channels

The above risks can lead to events resulting in the loss of assets. This loss may be two types:

1. **Deliberate loss of assets** can result from disclosing information, fraud, or deliberate disruption of service.
2. **Inadvertent loss of assets** can occur through inadvertent disruption of service, legal penalties due to disclosure of information, or direct or indirect losses due to lost business.

7.4.2 E-Commerce Threats

Anything with the capability, technology, opportunity and intent to do harm is called threat. Potential threats can be foreign or domestic, internal or external, state-sponsored or a single rogue element. Terrorists, insiders, disgruntled employees and hackers are included in this profile. E-commerce threats can be classified into the following categories;

1. Intellectual property threats -- use existing materials found on the Internet without the owner's permission, e.g., music downloading, domain name (cybersquatting), software pirating
2. Client computer threats
   - Trojan horse
   - Active contents
   - Viruses
3. Communication channel threats
   - Sniffer program
   - Backdoor
   - Spoofing
   - Denial-of-service
4. Server threats
   - Privilege setting
   - Server Side Include (SSI), Common Gateway Interface (CGI)
   - File transfer
   - Spamming

A procedure that recognizes, reduces, or eliminates a threat

1. Intellectual property protection
   - Legislature
   - Authentication
2. Client computer protection
   - Privacy -- Cookie blockers; Anonymizer
   - Digital certificate
   - Browser protection
   - Antivirus software
   - Computer forensics expert

3. Communication channel protection
   - Encryption
     * Public-key encryption (asymmetric) vs Private-key encryption (symmetric)
     * Encryption standard: Data Encryption Standard (DES), Advanced Encryption Standard (AES)
   - Protocol
     * Secure Sockets Layer (SSL)
     * Secure HyperText Transfer Protocol (S-HTTP)
   - Digital signature

     Bind the message originator with the exact contents of the message

     –A hash function is used to transform messages into a 128-bit digest (message digest).

     –The sender's private key is used to encrypt the message digest (digital signature)

     –The message + signature are sent to the receiver

     –The recipient uses the hash function to recalculate the message digest

     –The sender's public key is used to decrypt the message digest

     –Check to see if the recalculated message digest = decrypted message digest
4. Server protection
   - Access control and authentication
     * Digital signature from user
     * Username and password
     * Access control list
   - Firewalls

   International Computer Security Association's classification:

   · Packet filter firewall: checks IP address of incoming packet and rejects anything that does not match the list of trusted addresses (prone to IP spoofing)

   · Application level proxy server: examines the application used for each individual IP packet (e.g., HTTP, FTP) to verify its authenticity.

   · Stateful packet inspection: examines all parts of the IP packet to determine whether or not to accept or reject the requested communication.

7.4.3 How to minimize Security Threats

1. Perform a risk assessment: A list of information assets and their value to the firm

2. Develop a security policy: A written statement on:
   - What assets to protect from whom?
   - Why these assets are being protected?
   - Who is responsible for what protection?
   - Which behaviours are acceptable and unacceptable?
3. Develop an implementation plan à a set of action steps to achieve security goals
4. Create a security organization à a unit to administer the security policy
5. Perform a security audit à a routine review of access logs and evaluation of security procedures

Besides, the table below outlines some of the more prominent Internet security threats and measures to be taken to protect them.

Nature of Threat	**Effect of Threat**	**Measures of protection**
Virus	A virus is a piece of code that, when loaded onto a computer, is capable of attaching itself to other files and repeatedly replicating itself, usually without user knowledge. Some viruses can lie dormant until activated by a trigger such as a date (for example, 'time-bomb').	Anti-Virus software protects against infection. You can also subscribe to a Virus Alert mailing list (for example, AusCERT, www.auscert.org.au). Exercise caution with unsolicited emails, especially if they have attachments. When in doubt, delete. Avoid having the preview pane open when using email.
Worm	A worm is a specialized type of virus. The most common form, an email macro virus, occurs as an attachment to an email. Opening the email message activates the worm, which then sends itself to every address in your address book.	Most Anti-Virus software will stop worms or help fix the computer after infection. Exercise other precautionary measures as for viruses generally.
Trojan Horse	A Trojan Horse is another type of virus, which carries unauthorized software or viruses to your computer. Some free software, shareware or games downloaded from the Internet may contain Trojan Horse viruses. Be cautious of accepting email attachments, especially executable files ending with '.exe'.	Most Anti-Virus software will stop Trojan Horse viruses or help fix the computer after infection. Exercise other precautionary measures as for viruses generally.

Denial of Service (DoS) attack	DoS attacks can render Internet-connected computers and networks unusable, mainly by overloading computers with messages. DoS attacks are popular with hackers and can deny users access to a website.	Anti-DoS attack software programs are available to assist in securing networks.
Port Scanning	Port scanning identifies 'open doors' to a computer (vulnerabilities which may provide a point of access by hackers). A computer's port is scanned because this is the place where information travels to and from the computer. Port scanning can unnecessarily increase your Internet usage and associated costs by increasing the amount of data transmitted to and from your computer.	Firewalls (specific network servers and/or routers that filter out unwanted packets of data) can protect computers and servers from port scanning. Firewalls can be used to protect individual PCs as well as networks of computers.
Sniffer Program	Sniffer software programs track data travelling over the Internet or other networks. They can be used legitimately for network management purposes, they can also be used to steal unsecured data and information.	Ensure that no unauthorized equipment is connected to computers or the network. Use encryption to protect sensitive communications across a network.
Dumping	Internet Dumping occurs when a person logged on to the Internet has their modem connection to their usual dial-up number disconnected and reconnected to another number - either an international number or a 1900 (premium rate) number. In many cases people are not aware that they have been dumped until they receive an unusually high phone bill as a result of the modem's re-connection.	To prevent dumping place a bar on all calls starting with 1900 on phone services and exercise caution in downloading and installing software from sites you do not trust. Complaints can be lodged with the Telecommunications Industry Ombudsman at www.tio.com.au.

7.4.4 Legal issues

The fact that the use of the Internet for business transactions was a relatively recent phenomenon created uncertainty in the minds of many about the legal standing of these transactions. It could be assumed that laws that applied to paper-based transactions would also apply to electronic transactions. For example, it would still be necessary to comply with laws regarding defamation and intellectual property when publishing on the Internet. But it was unclear exactly how the courts would interpret and apply existing laws to electronic transactions.

This made some hesitant to trade in the online environment, and was an impediment to broader adoption of e-commerce.

To promote community and business confidence in the online environment, the Commonwealth, State and Territory governments agreed to establish a light-handed, technology-neutral legal framework to support the use of e-commerce. Most governments have implemented or are implementing legislation dealing with the legal status of electronic transactions. While a comprehensive body of e-commerce law will only develop as specific cases are decided in the courts, this legislation sets the framework for electronic transactions.

7. 5 E-banks and Security

E-banking increases security risks, potentially exposing hitherto isolated systems to open and risky environments. Security breaches essentially fall into three categories, viz.,

- ❖ Breaches with serious criminal intent (fraud, theft of commercially sensitive or financial information)
- ❖ Breaches by casual hackers (defacement of websites or denial of service causing websites to crash)
- ❖ Flaws in systems design and/or set up leading to security breaches (genuine users seeing/being able to transact on other users' accounts)

E-banking system should consider the following points for strengthening its security system:

- ➢ A strategic approach to information security, building best practice security controls into systems and networks as they are developed
- ➢ A proactive approach to information security, involving active testing of system security controls (eg., penetration testing), rapid response to new threats and vulnerabilities and regular review of market place developments
- ➢ Sufficient staff with information security expertise
- ➢ Active use of system based security management and monitoring tool
- ➢ Strong business information security controls

7.6 E-Security protocols

Following are the popular protocols used over the internet which ensures security of transactions made over the internet.

Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements −

- Authentication
- Encryption
- Integrity
- Non-reputability

"https://" is to be used for HTTP urls with SSL, whereas "http:/" is to be used for HTTP urls without SSL.

Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication and digital signature over the internet. Secure HTTP supports multiple security mechanism providing security to end users. SHTTP works by negotiating encryption scheme types used between client and server.

Secure Electronic Transaction (SET)

It is a secure protocol developed by MasterCard and Visa in collaboration. Theoretically, it is the best security protocol. It has following components −

- **Card Holder's Digital Wallet Software** − Digital Wallet allows card holder to make secure purchases online via point and click interface.
- **Merchant Software** − This software helps merchants to communicate with potential customers and financial institutions in secure manner.
- **Payment Gateway Server Software** − Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.
- **Certificate Authority Software** − This software is used by financial institutions to issue digital certificates to card holders and merchants and to enable them to register their account agreements for secure electronic commerce.

7.7 Firewall

A firewall insulates a private network from a public network using carefully established controls on the types of request they will route through to the private network for processing and fulfilment. For example, an HTTP request for a public Web page will be honoured, whereas an FTP request to a host behind the firewall may be dishonoured. Firewalls typically run monitoring

software to detect and thwart external attacks on the site, and are needed to protect internal corporate networks. Firewalls appear primarily in two flavours; application level gateways and proxy servers. Other uses of firewalls include technologies such as Virtual Private Networks that use the Internet to tunnel private traffic without the fear of exposure

7.7.1 Definitions of firewalls

1. Cheswick and Bellovin define a firewall as a collection of components or a system placed between two networks and possessing the following properties:
    - All traffic from inside to outside, and vice-versa, must pass through it;
    - only authorized traffic, as defined by the local security policy, is allowed to pass through it; and
    - the system itself is highly resistant to penetration.
2. A firewall is a mechanism used to protect a trusted network from an untrusted network, usually while still allowing traffic between the two. Typically, the two networks in question are an organization's internal (trusted) network and the (untrusted) Internet.
3. Firewall protects the networks from attacks through the internet.
4. A firewall enforces an access control policy.
5. A firewall is a software program or piece of hardware that helps screen out hackers, viruses, and worms that try to reach your computer over the Internet.
6. A firewall is a network security system, either hardware or software based, that controls incoming and outgoing network traffic based on a set of rules.
7. Internet firewalls are often referred to as secure Internet gateways. Like the gates in a medieval walled city, they control access to and from the network.

Firewall filters the incoming and outgoing traffic that flows through a system. It can use one or more sets of "rules" to inspect network packets such as the protocol type, source or destination host address, and source or destination port. It can enhance the security of a host or a network. It can be used to do one or more of the following:

- Protect and insulate the applications, services, and machines of an internal network from unwanted traffic from the public Internet.
- Limit or disable access from hosts of the internal network to services of the public Internet.

- Support network address translation (NAT), which allows an internal network to use private IP addresses and share a single connection to the public Internet using either a single IP address or a shared pool of automatically assigned public addresses.

Basically, a firewall is a barrier to keep destructive forces away from your property. In fact, that's why it's called a firewall. Its job is similar to a physical firewall that keeps a fire from spreading from one area to the next.

Another approach to firewall views it as both policy and the implementation of that policy in terms of network configuration. Physically, a firewall comprises one or more host systems and routers, plus other security measures such as advanced authentication in place of static passwords.

7.7.2 Types of Firewalls

Firewall are classified into the following categories

- Access Control Lists
- Packet filter
- Application -level Gateway
- Network layer firewall
- Proxy server
- Stateful inspection firewalls
- Unified Threat Management (UTM)
- Next-generation firewalls (NGFWs)

i. Access Control Lists (ACLs)

These were early firewalls implemented, typically on routers. They are useful for scalability and performance, but can't read more than packet headers, which provide only rudimentary information about the traffic.

ii. Packet Filter

Packet filtering at the network layer can be use first defense, i iltering can occur on incoming packets, outgoing packets, or both. Limitations may exist on one's router as to where one can apply a filter. Filtering of incoming packets may protect the router from becoming compromised by an attacker.

Some security issues may come in the form address spoofing. IP address spoofing is defined as sending pa from an outside host that allege to be sent from an internal Attacks using

IP address spoofing are difficult to detect unless logging is performed and activities are correlated against legitimate. Hence, though filtering helps in the fight against security threats does not by itself prevent attacks from address spoofing. A threat could still be realized by an attacker portraying a trusted host that may be on an internal network.

iii. Application -level Gateway

Application layer firewalls are hosts that run proxy servers, which permit no traffic directly between networks and they perform elaborate logging and examination of traffic passing through them. Application layer firewalls can be used as network address translators, since traffic goes in one side and out the other after having passed through an application that effectively masks the origin of the initiating connection.

An application-level gateway provides mechanism for filtering traffic for various applications. The administrator defines and implements code specific to applications or service. Services or users that can compromise the network security then be restricted. To counter some weaknesses associated with filtering routers, firewalls utilize software applications to forward filter connections for services such as Telnet, FTP, and HTTP

A key distinction between packet-filtering router application-level gateways is the ability to filter and log at the application level rather than just the IP level. In this way, administrators do not have to worry about security holes in foreign hosts which may only invoke simple measures. Application gateways have over filtering routers, including logging, hiding of internal host names and IP addresses, robust authentication, and simpler filtering rules.

iv. Network layer firewalls

Network layer firewalls generally make their decisions based on the source address, destination address and ports in individual IP packets. A simple router is the traditional network layer firewall, since it is not able to make particularly complicated decisions about what a packet is actually talking to or where it actually came from. One important distinction many network layer firewalls possess is that they route traffic directly through them, which means in order to use one, you either need to have a validly assigned IP address block or a private Internet address block. Network layer firewalls tend to be very fast and almost transparent to their users.

v. Proxy server

Proxy firewalls offer more security than other types of firewalls, but at the expense of speed and functionality, as they can limit which applications the network supports.

Unlike stateful firewalls or application layer firewalls, which allow or block network packets from passing to and from a protected network, traffic does not flow through a proxy.

A proxy server terminates a user's connection and sets up a new connection to the ultimate destination on behalf of the user, proxying for the user. This prevents direct connections between systems on either side of the firewall and makes it harder for an attacker to discover where the network is, because they don't receive packets created directly by their target system.

A user connects with a port on the proxy; the connection is routed through the gateway to a destination port, which is routed to the destination address. Logging can be set up to track such transmission information as number of bytes sent, inbound IP address, and the outbound destination IP address. Usually, if a proxy is used, the proxy server provides most of the Internet connectivity. An example of a proxy is a Web services proxy server (HTTP).

Proxy firewalls also provide comprehensive, protocol-aware security analysis for the protocols they support. This allows them to make better security decisions than products that focus purely on packet header information.

vi. Stateful inspection firewalls

They classify and track the state of traffic by monitoring all connection interactions until a connection is closed.

vii. Unified Threat Management (UTM)

Solutions consolidate stateful inspection firewalls, antivirus, and IPS to a single appliance. They are also generally understood to include many other network security capabilities.

viii. Next-generation firewalls (NGFWs)

They were created to respond to increasing capabilities of malware and applications. They bring together the key network security functions, including advanced firewall, IPS/IDS, URL filtering and threat protection. Our NGFW solution ensures better security than legacy firewalls, UTMs, or point threat detection products.

A firewall is an approach to security; it helps implement a larger security policy that defines the services and access to be permitted. In other words, a firewall is both policy and the implementation of that policy in terms of network configuration, host systems and routers, as well as other security measures such as advanced authentication in place of static passwords.

7.8 Virus protection

A computer virus is defined as a program executed in different forms to infect and attack computers at home or at businesses. Studying the behaviour and characteristics of viruses brings us to discovering the symptoms resulting from infected systems and e-commerce.

On one hand, like virus attack might range from Worms, Trojan Horses, and logic or time bombs. On the other hand, non-virus attacks range from Bugs and False alarms to Droppers and Jokes. Finally, for every disease there is a treatment and for every PC virus there is antivirus software that ceases its job to widely spread further in system corruptions.

7.8.1 Definition of Virus

1. Computer viruses are small software programs that are designed to spread from one computer to another and to interfere with computer operation.
2. A computer virus is a type of malware that is intentionally written to gain entry into your computer, without your knowledge or permission. It has the capacity to modify or replicate itself, in which case it will continue spreading.
3. Computer virus is a software program written with malicious intentions which can impede the functioning of computer.
4. A Computer virus is a harmful software programme written intentionally to enter a computer without the user's permission or knowledge. It has the ability to replicate itself, thus continuing to spread. Some viruses do little but replicate, while others can cause severe harm or adversely affect the programme and performance of the system. A virus should never be assumed harmless and left on a system.
5. A computer virus is a program written to enter your computer system surreptitiously and "infect" it by installing or modifying files or establishing itself in memory. Some viruses are benign and won't harm your system, while others are destructive and can damage or destroy your data
6. A computer virus is a program designed to harm or cause harm on an infected computer. Viruses can spread via any of the methods used to get information into your computer: network connections, shared folders, e-mail, and shared media such as flash memory, CDs, and diskettes. Once they are established, viruses work at transferring themselves to other computers. Its spreads through e-mail attachments, portable devices, websites containing malicious scripts and file downloads.

7. A computer virus attaches itself to the host files and always activate whenever the infected files are opened. The virus can replicate itself and then infect the other files on your computer causing more damage.

Viruses can be differentiated by the methods they use to spread. **Worms** are viruses that self-replicate and spread via e-mail or networks. **Trojans** are seemingly legitimate computer programs that have been intentionally designed to disrupt computing activity or use computer for something did not intend. Advancement in communication system paved way for the number of viruses, worms and Trojans and the speed with which they spread have increased dramatically. Flaws in operating systems like Windows or peer-to-peer file sharing programs and other widely distributed network software may open "backdoors" to computer and can run malicious code, infect system, or use computer for their own personal benefit.

Some popular peer-to-peer programs are: Acquisition, Aimster, Ares, Audiogalaxy, BearShare, BitTorrent (and other BitTorrent clients), Blubster, Direct Connect, eDonkey2000, Freewire, Gnotella, Gnucleus, Grokster, GTK-Gnutella, iMesh, Kazaa, LimeWire, LordofSearch, Mactella, Morpheus, NeoNapster, OneMX, Overnet, Phex, Piolet, Qtella, Shareaza, SoulSeek, SwapNut, TrustyFiles, Warez P2P, WinMX, and XoLoX. Some of these are, no doubt, safer than others. All of them make your computer more accessible from the Internet.

Backdoors created by spyware may also be vulnerable to viruses. Spyware provides some kind of service in exchange for monitoring and reporting activities. At a minimum, spyware is likely to degrade the performance of your computer and increase traffic on your network connection. It may also result in annoying pop-up advertisements while you surf the Web. In the worst cases, computers become so clogged with spyware that they are no longer usable. Ad-Aware from Lavasoft and Spybot Search and Destroy from Safer Networking are two preferred tools for combating spyware. Both are free for personal use.

Given below is a list of different types of computer viruses and their functions

7.8.2 Types of Computer Viruses

i. Macro Viruses

Macro viruses infect files that are created using certain applications or programs that contain macros, like .doc, .xls, .pps, .mdb, etc. These mini-programs make it possible to automate series of operations so that they are performed as a single action, thereby saving the user from having to carry them out one by one. These viruses automatically infect the file that

contains macros, and also infects the templates and documents that the file contains. It is referred to as a type of e-mail virus

Hideout: These hide in documents that are shared via e-mail or networks.

Macro viruses include:

Relax

bablas

Melissa.A

097M/Y2K

Protection: The best protection technique is to avoid opening e-mails from unknown senders. Also, disabling macros can help to protect your useful data

ii. Memory Resident Viruses

These viruses fix themselves in the computer memory and get activated whenever the OS runs and infects all the files that are then opened.

Hideout: This type of virus hides in the RAM and stays there even after the malicious code is executed. It gets control over the system memory and allocates memory blocks through which it runs its own code, and executes the code when any function is executed.

Target: It can corrupt files and programs that are opened, closed, copied, renamed, etc.

Memory Resident Viruses Include:

CMJ

meve

randex

mrklunky

Protection: Install an antivirus program.

iii. Overwrite Viruses

These types of viruses delete any information in a file they infect, leaving them partially or completely useless once they are infected. Once in the computer, they replace all the file content but the file size doesn't change.

Hideout: The virus replaces the file content. However, it does not change the file size.

Overwrite Viruses Include:

Trj.Reboot

way

trivial.88.D

Protection: The only way to clean a file infected by an overwrite virus is to delete the file completely, thus losing the original content. However, it is very easy to detect this type of virus, as the original program becomes useless.

iv. Direct Action Viruses

These viruses mainly replicate or take action once they are executed. When a certain condition is met, the viruses will act by infecting the files in the directory or the folder specified in the AUTOEXEC.BAT. The viruses are generally found in the hard disk's root directory, but they keep on changing location. FindFirst/FindNext technique is used where the code selects a few files as its victims. It also infects the external devices like pen drives or hard disks by copying itself on them.

Hideout: The viruses keep changing their location into new files whenever the code is executed, but are generally found in the hard disk's root directory.

Target: It can corrupt files. Basically, it is a file-infecter virus.

Direct Action Viruses Include:

Vienna virus

Protection: Install an antivirus scanner. This type of virus has minimal effect on the computer's performance.

v. Directory Virus

Also known as cluster virus or file system virus. They infect the computer's directory by changing the path indicating file location. They are usually located in the disk but affect the entire directory. When you execute a program file with an extension .EXE or .COM that has been infected by a virus, you are unknowingly running the virus program, while the original file and program is previously moved by the virus. Once infected, it becomes impossible to locate the original files

Hideout: It is usually located in only one location of the disk, but infects the entire program in the directory.

Directory Viruses Include:

dir-2 virus

Protection: All you can do is, reinstall all the files from the backup that are infected after formatting the disk.

vi. Web Scripting Virus

Most web pages include some complex codes in order to create an interactive and interesting content. Such a code is often exploited to cause certain undesirable actions. They mostly originate from the infected web pages or browsers.

Web Scripting Viruses Include:

JS.Fortnight is a virus that spreads through malicious e-mails.

Hideout: The main sources of web scripting viruses are the web browsers or infected web pages

Protection: Install the microsoft tool application that is a default feature in Windows 2000, Windows 7 and Vista. Scan the computer with this application

vii. Multipartite Virus

These viruses spread in multiple ways possible. It may vary in its action depending upon the operating system installed and the presence of certain files. They tend to hide in the computer's memory but do not infect the hard disk.

Multipartite Viruses Include:

flip

invader

tequila

Hideout: In the initial phase, these viruses tend to hide in the memory as the resident viruses do; then they infect the hard disk

Protection: Clean the boot sector and also the disk to get rid of the virus, and then reload all the data in it. However, ensure that the data is clean

viii. FAT Viruses

The file allocation table (FAT) is the part of a disk used to store all the information about the location of files, available space, unusable space, etc.

FAT Viruses Include:

the link virus

Hideout: FAT virus attacks the FAT section and may damage crucial information. It can be especially dangerous as it prevents access to certain sections of the disk where important files are stored. Damage caused can result in loss of information from individual files or even entire directories

Protection: Before the virus attacks all the files on the computer, locate all the files that are actually needed on the hard drive, and then delete the ones that are not needed. They may be files created by viruses

ix. Companion Viruses

These are type of file infector virus. These viruses infect files just like the direct action and the resident types. They are known as companion viruses because once they get into the system they 'accompany' the other files that already exist. In other words, to carry out their infection routines, companion viruses can wait in memory until a program is run (resident virus), or act immediately by making copies of themselves (direct action virus)

Hideout: These generally use the same filename and create a different extension of it

For example: If there is a file "Me.exe", the virus creates another file named "Me.com" and hides in the new file. When the system calls the filename "Me", the ".com" file gets executed (as ".com" has higher priority than ".exe"), thus infecting the system

Companion Viruses Include:

Asimov.1539

stator and terrax.1069

Protection: Install an antivirus scanner and also download Firewall

x. Polymorphic Virus

They encode or encrypt themselves in a different way every time they infect your computer. They use different encryption and algorithms. This makes it difficult for the antivirus software to locate them using signature or string searches (since they are very different in each encryption). The virus then goes on to create a large number of copies

Polymorphic Viruses Include:

Marburg

tuareg

Satan bug

elkern

Protection: Install a high-end antivirus as the normal ones are incapable of detecting this type of virus

xi. Worm

This program is very similar to a virus and has the ability to self-replicate leading to negative effects on your computer. But they can be detected and eliminated by an antivirus software

Hideout: These generally spread through e-mails and networks. They do not infect files or damage them, but they replicate so fast that the entire network may collapse

Worms include:

PSWBugbear.B

Lovgate.F

Trile.C

Sobig.D

Mapson

Protection: Install an updated version of antivirus

xii. Trojans

Trojans can illegally trace important login details of users online. For example E-Banking is very common among users, therefore, vulnerability of tracing your login details whenever your PC is working without any strong powerful antivirus installed.

Another nasty breed of malicious code are Trojans or Trojan horses, which unlike viruses, do not reproduce by infecting other files, nor do they self-replicate like worms. In fact, it is a program which disguises itself as a useful program or application

xiii. Email Virus

This is a virus spread via an email. Such a virus will hide in an email and when the recipient opens the mail.

xiv. Browser Hijacker

This virus can spread in many different ways including a voluntary download. If infects certain browser functions especially in form of re-directing the user automatically to certain sites. A good example is

Browser Hijackers Include:

the cool web search

Boot Sector Virus

This type of virus affects the boot sector of a hard disk. This is a crucial part of the disk, in which information of the disk itself is stored along with a program that makes it possible to boot (start) the computer from the disk. This type of virus is also called Master Boot Sector Virus or Master

Hideout: It hides in the memory until DOS accesses the floppy disk, and whichever boot data is accessed, the virus infects it.

xv. Boot Record Virus include

Polyboot.B

AntiEXE

Protection: The best way of avoiding boot sector viruses is to ensure that floppy disks are write protected. Also, never start your computer with an unknown floppy disk in the disk drive.

xvi. Logic Bombs

They are not considered viruses because they do not replicate. They are not even programs in their own right, but rather camouflaged segments of other programs. They are only executed when a certain predefined condition is met. Their objective is to destroy data on the computer once certain conditions have been met. Logic bombs go undetected until launched, the results can be destructive and your entire data can be deleted

From the above discussion, it is very clear that computer viruses and their effects are very harmful and can completely damage computer. Always make sure your system is up to date. Also install antivirus software. The antivirus program protects your computer and the personal information in it.

7.8.3 What do computer viruses do?

Through the use of Internet and computer, one may have come in to contact with computer viruses. A computer virus might corrupt or delete data on the computer, it may use the email program to spread itself to other computers, or even erase everything on the hard disk. Computer viruses are often spread by attachments in email messages. That is why it is essential that not to open email attachments from unknown source. Viruses can be disguised as attachments of funny images, greeting cards, or audio and video files. Computer viruses also spread through downloads on the Internet.

7.8.4 Virus Symptoms

The following points will highlight the ways in which virus can be detected:

- **If your computer starts performing differently for no apparent reason, it may be infected by a virus**.
- Antivirus software will give a warning of an infection. However, that may not happen if it is not updated or if antivirus software stops functioning for some reason. (For example, some viruses attack antivirus software).
- There's no single symptom for virus infections. Some viruses inform themselves by displaying messages like, "Ha, ha, you're infected by whatever."
- Others just usurp system and network resources to do things like send e-mail messages or propagate themselves over the network.
- Still others delete or corrupt critical files**.** In some cases, Information Security is able to detect a virus on computer by tracing malicious network traffic or e-mail back to your network connection.
- Recognizing computer virus symptoms is a slightly slow and cumbersome task, which depends on the virus competency and the user's computer knowledge and understanding. If the user has the correct knowledge, computer virus symptoms can often be spotted quickly after infection.
- Malicious viruses will often corrupt or delete program or system files, and perhaps invade the computer storage and memory. The deletion of critical files can usually been seen almost instantly, as commonly used programs will no longer work as intended or parts of the system will start to become unstable or disabled; when it has been determined that these errors have not been caused by the user, it is highly likely that the computer terminal, system or network has been infected with a computer virus.
- Memory occupying is another way a virus may secure its place on a computer, by installing itself transparently at system start up.
- Sudden degradation in the computer's ability. If the user suddenly spots a dramatic decrease, or considerable slowing down of their computer terminal, is the symptom of virus infection.
- If files appear to be moving, changing size, or doing other suspicious activities, it is the symptom of virus infection

7.8.5 Precautions and Preventive Actions

Many viruses create multiple copies of themselves on each computer, so that if one suspect were deleted, other hidden clones may carry on. Antivirus software is programmed to recognize this, and wipe all components of a virus, including memory inhabitants. Symptoms, like that of the Trojan, are difficult to spot without the use of anti-virus software, unless the user has knowledge. While some computer virus symptoms may alert infected users of their presence, through an on-screen message of some sort, the majority of virus programs are a little more subtle - and these are the more destructive computer virus.

To help avoid computer viruses, it's essential to update antivirus tools, stay informed about recent threats, run computer as a standard user not as administrator and that follow a few basic rules when surfing the Internet, downloading files and opening attachments. Once a virus is on, its type or the method it used to get there is not as important as removing it and preventing further infection.

Virus protection software is designed to prevent viruses, worms and Trojan horses from getting onto a computer as well as remove any malicious software code that has already infected a computer.

7.8.6 Measures to avoid viruses and spyware

IT professionals must encourage their users to follow several security practices to minimize virus, spyware, and malware exposure.

1: Install quality antivirus

All Windows users should install professional, business-grade antivirus software on their PCs. Pro-grade antivirus programs update more frequently throughout the day, protect against a wider range of threats (such as rootkits) and enable additional protective features (such as custom scans).

2: Install real-time anti-spyware protection

Most free anti-spyware programs do not provide real-time, or active, protection from adware, Trojan, and other spyware infections. While many free programs can detect spyware threats once they've infected a system, typically professional (or fully paid and licensed) anti-spyware programs are required to prevent infections and fully remove those infections already present.

3: Keep anti-malware applications current

Antivirus and anti-spyware programs require regular signature and database updates. Without these critical updates, anti-malware programs are unable to protect PCs from the latest threats. Computer users must keep their antivirus and anti-spyware applications up to date. Prevent license expiration, thereby ensuring that they provide protection against the most recent threats.

4: Perform daily scans

Regardless of the infection source, enabling complete, daily scans of a system's entire hard drive adds another layer of protection. These daily scans can be invaluable in detecting, isolating, and removing infections that initially escape security software's attention.

5: Disable autorun

Computer users can disable the Windows autorun feature by following Microsoft's recommendations, which differ by operating system.

6: Disable image previews in Outlook

Prevent against automatic infection by disabling image previews in Outlook. By default, newer versions of Microsoft Outlook do not automatically display images. But if you have changed the default security settings, you can switch them back selecting Don't Download Pictures Automatically in HTML E-Mail Messages or RSS.

7: Don't click on email links or attachments

Don't click on email links or attachments. Users should never click on email attachments without at least first scanning them for viruses using a business-class anti-malware application. As for clicking on links, users should access Web sites by opening a browser and manually navigating to the sites in question.

8: Surf smart

Users should never enter user account, personal, financial, or other sensitive information on any Web page at which they haven't manually arrived. They should instead open a Web browser, enter the address of the page they need to reach, and enter their information that way, instead of clicking on a hyperlink and assuming the link has directed them to the proper URL. Hyperlinks contained within an e-mail message often redirect users to fraudulent, fake, or unauthorized Web sites. By entering Web addresses manually, users can help ensure that they arrive at the actual page they intend.

9: Use a hardware-based firewall

Reliable firewall is indispensable, as it protects computers from a wide variety of exploits, malicious network traffic, viruses, worms, and other vulnerabilities. The software-based firewall included with Windows is not sufficient to protect systems from the myriad robotic attacks affecting all Internet-connected systems. Therefore, all PCs should be connected to the Internet secured capable hardware-based firewall.

10: Deploy DNS protection

Users can protect themselves from many threats by changing the way their computers process DNS services. While a computer professional may be required to implement the switch, OpenDNS offers free DNS services to protect users against common phishing, spyware, and other Web-based hazards.

11. Use a firewall.

Windows Firewall (or any other firewall) can help alert you to suspicious activity if a virus or worm attempts to connect to your computer. It can also block viruses, worms, and hackers from attempting to download potentially harmful programs to your computer.

12. Use your browser's privacy settings.

Being aware of how websites might use your private information is important to help prevent fraud and identity theft. If you're using Internet Explorer, you can adjust your Privacy settings or restore the default settings whenever you want.

13. Use a pop-up blocker with your browser.

Pop-up windows are small browser windows that appear on top of the website you're viewing. Although most are created by advertisers, they can also contain malicious or unsafe code. A pop-up blocker can prevent some or all of these windows from appearing. The Pop-up Blocker feature in Internet Explorer is turned on by default.

14. Turn on User Account Control (UAC).

When changes are going to be made to your computer that require administrator-level permission, UAC notifies you and gives you the opportunity to approve the change. UAC can help keep viruses from making unwanted changes.

7.9 Intruders

Intruder, often referred to as a hacker or cracker, is another threat to security Anderson identified three classes of intruders:

1. Masquerader: An individual who is not authorized to use the computer and who penetrates a system's access controls to exploit a legitimate user's account
2. Misfeasor: A legitimate user who accesses data, programs, or resources for which such access is not authorized, or who is authorized for such access but misuses his or her privileges
3. Clandestine user: An individual who seizes supervisory control of the system and uses this control to evade auditing and access controls or to suppress audit collection.

The masquerader is likely to be an outsider; the misfeasor generally is an insider; and the clandestine user can be either an outsider or an insider. Intruder attacks range from the benign to the serious. At the benign end, there are many people who simply wish to explore internets. At the serious end, individuals who attempt to read privileged data, perform unauthorized modifications to data, or disrupt the system.

Examples of intrusion:

- Performing a remote root compromise of an e-mail server
- Defacing a Web server
- Guessing and cracking passwords
- Copying a database containing credit card numbers
- Viewing sensitive data, including payroll records and medical information, without authorization
- Running a packet sniffer on a workstation to capture usernames and passwords
- Using a permission error on an anonymous FTP server to distribute pirated software and music files
- Dialling into an unsecured modem and gaining internal network access
- Posing as an executive, calling the help desk, resetting the executive's e-mail password, and learning the new password
- Using an unattended, logged-in workstation without permission

7.9.1 Intruder Behaviour Patterns

The techniques and behaviour patterns of intruders are constantly shifting, to exploit newly discovered weaknesses and to evade detection and countermeasures. Even so, intruders typically follow one of a number of recognizable behaviour patterns, and these patterns typically differ from those of ordinary users. In the following, we look at three broad examples of intruder behaviour patterns, to give the reader some feel for the challenge facing the security administrator.

Some Examples of Intruder Patterns of Behaviour

(a) Hacker

1. Select the target using IP lookup tools such as NSLookup, Dig, and others.
2. Map network for accessible services using tools such as NMAP.
3. Identify potentially vulnerable services (in this case, pcAnywhere).
4. Brute force (guess) pcAnywhere password.
5. Install remote administration tool called DameWare.
6. Wait for administrator to log on and capture his password.
7. Use that password to access remainder of network.

(b) Criminal Enterprise

1. Act quickly and precisely to make their activities harder to detect.
2. Exploit perimeter through vulnerable ports.
3. Use Trojan horses (hidden software) to leave back doors for reentry.
4. Use sniffers to capture passwords.
5. Do not stick around until noticed.
6. Make few or no mistakes.

(c) Internal Threat

1. Create network accounts for themselves and their friends.
2. Access accounts and applications they wouldn't normally use for their daily jobs.
3. E-mail former and prospective employers.
4. Conduct furtive instant-messaging chats.
5. Visit Web sites that cater to disgruntled employees, such as f'dcompany.com.
6. Perform large downloads and file copying.
7. Access the network during off hours.

7.9.2 Intrusion Techniques

The objective of the intruder is to gain access to a system or to increase the range of privileges accessible on a system. Most initial attacks use system or software vulnerabilities that allow a user to execute code that opens a back door into the system. Alternatively, the intruder attempts to acquire information that should have been protected. In some cases, this information is in the form of a user password. With knowledge of some other user's password, an intruder can log in to a system and exercise all the privileges accorded to the legitimate user. Typically, a system must maintain a file that associates a password with each authorized user. If such a file is stored with no protection, then it is an easy matter to gain access to it and learn passwords. The password file can be protected in one of two ways:

1. **One-way function**: The system stores only the value of a function based on the user's password. When the user presents a password, the system transforms that password and compares it with the stored value.
2. **Access control**: Access to the password file is limited to one or a very few accounts. If one or both of these countermeasures are in place, some effort is needed for a potential intruder to learn passwords.

On the basis of a survey of the literature and interviews with a number of password crackers, the following techniques for learning passwords are reported:

1. Try default passwords used with standard accounts that are shipped with the system. Many administrators do not bother to change these defaults.
2. Exhaustively try all short passwords (those of one to three characters).
3. Try words in the system's online dictionary or a list of likely passwords. Examples of the latter are readily available on hacker bulletin boards.
4. Collect information about users, such as their full names, the names of their spouse and children, pictures in their office, and books in their office that are related to hobbies.
5. Try users' phone numbers, Social Security numbers, and room numbers.
6. Try all legitimate license plate numbers for this state.
7. Use a Trojan horse to bypass restrictions on access.
8. Tap the line between a remote user and the host system.

7.9.3 Password Protection

The defence against intruders is the password system. All multiuser systems require that a user provide not only a name or identifier (ID) but also a password. The password serves to authenticate the ID of the individual logging on to the system. In turn, the ID provides security in the following ways:

- The ID determines whether the user is authorized to gain access to a system. In some systems, only those who already have an ID filed on the system are allowed to gain access.
- The ID determines the privileges accorded to the user. A few users may have supervisory or "superuser" status that enables them to read files and perform functions that are especially protected by the operating system. Some systems have guest or anonymous accounts, and users of these accounts have more limited privileges than others.
- The ID is used in what is referred to as discretionary access control. For example, by listing the IDs of the other users, a user may grant permission to them to read files owned by that user.

7.9.4 Protection from intrusion:

The internet has certainly made our lives easier and more comfortable. Just think of web services, such as online takeaway ordering or online grocery purchases which can be carried out with one click and delivered to your doorstep. On the other hand most of us know how annoying it is when your device catches a virus and stops working, resulting in a loss of your data. Computers have revolutionized how we learn, work, shop, pay bills, keep track of our accounts, and communicate with others. Computer is like your home – it contains sensitive and valuable information, so it's a good idea to keep it locked and be careful about it.

Intruders lurking in cyberspace or those who have physical access to your computer may try to steal information stored in your computer, or use it to attack other computer systems. Some individuals simply enjoy sending out viruses that can destroy your files and require expensive computer repairs. Taking some basic security steps can help one to use computer with confidence and protect personal information from abuse by the intrusion.

Step One: Pick an Effective Password

Passwords are the keys that unlock access to your email accounts and other computer activities. They must be chosen to prevent intruders from correctly guessing them based on knowledge about you or cracking them with software programs that try every word in the dictionary until they get a match. To have an effective functioning of password the following factors may be considered:

- Use a combination of letter and numbers.
- Avoid obvious things such as your birth date.
- Pick passwords that you can easily remember.
- Don't write passwords anywhere which others may find them.
- Keep your passwords private and be suspicious of people who ask for them claiming to be from companies that should already have them.

Step Two: Build a Firm Firewall

A firewall is like the fence around a fort – it makes it harder for intruders to get into the computer from cyberspace. This is important for a high-speed Internet connection through cable provider or DSL (digital subscriber line), because the doorway from the computer to the Internet is open whenever the computer is on, even if you aren't doing anything online at that moment. To build a firm firewall, the following steps may be considered:

- Check if the computer hardware or software already has a built-in firewall.
- If yes, it may be necessary to turn the firewall feature on.
- If you don't already have one, you can find free firewall software on the Internet or purchase software.
- Use an external firewall device that connects to your computer.
- Firewalls differ, and some can be customized to suit your particular needs, so read the descriptions carefully and decide about the installation of a particular firewall.

Step Three: Avoid Catching a Computer Virus

A computer can become infected and infect other computers with viruses that may be planted in emails or attachments to emails, in programs or files that are downloaded, in floppy disks, and even in Web sites that are visited. The first line of defence is an anti-virus program. This is not the same as a firewall – both are needed since they protect you from different types of attacks. In this regard, the following points must be remembered:

- Get an anti-virus program that updates automatically.
- Install programs that can also repair damage caused by a virus.
- Don't open email or email attachments unless you expected the message and know the source.
- Download files and programs and use disks from sources you know and trust.
- Don't forward email warnings about new viruses to others – they could be hoaxes designed to spread a virus instead of warn against them.

Step Four: Back It Up

Consider safeguarding important items in your computer and take back up so that they won't be lost if a virus strikes, computer crashes, or there is some other kind of disaster. For example, financial records, research, writing, original artwork, and work files are difficult to reconstruct or replace, therefore they should be backed up regularly. For back up process the below given points are to be remembered:

- Don't rely on paper copies for things that would require inputting the data all over again, such as computerized check registers.
- Use floppy disks to back up small files, CDs or removable disk drives for larger files.
- Some items, (bank records), should be backed up every time a change is made, while others might require less frequent back-ups.
- Set schedules for backing up files and stick to them.
- Store back-ups in a locked, fireproof container.

Step Five: Keep Up to Date

To keep your computer secure, you need to keep one step ahead of Hackers (outsiders who try to get into computers through the Internet) and virus creators. Make use of "patches" that software manufacturers may offer when they discover flaws in their programs that can make them vulnerable to hackers, viruses, and other problems. These can often be downloaded at no charge.

- If your anti-virus software doesn't automatically update itself to detect and stop new viruses, get updated software at least once a year.
- Update your firewall regularly.

Step Six: Control the Use of Your Computer

When your computer is shared with roommates, children, or other users, it is crucial for everyone to follow the same security rules as follows:

- ❖ Make sure that all users understand the dangers of security breaches.
- ❖ Turn the computer off when not in use.
- ❖ Don't share passwords.
- ❖ Keep the computer in a common area where from it can be seen easily that who is using it and what they're doing.
- ❖ Instruct all users to tell inform immediately if they suspect there is a security problem.

Don't get panic if a security breach occurs. Report the same to your Internet service provider (ISP). If you have high-speed Internet access through cable or DSL, unplug the phone or cable line from your computer. Your ISP and software and hardware vendors may offer advice about how to remedy the problem. If you believe that someone has obtained your financial information, contact the financial institution immediately. Try to determine how the security breach occurred so you can strengthen your protection in the future.

7.9.5 Difference between Intruders and Hackers:

A hacker has a lot of computing skills and challenges of solving technical problems. This includes the failure of computers and networks. But the goal of intruder is no damage of network, the technical aspects and how to overcome as learners and status symbol among the hacker community.

A hacker is a person who intensely interested in the workings of any computer operating system. The hackers are most often programmers. As such, hackers obtain advanced knowledge of operating systems and programming languages. They might discover holes within systems and the reasons for such holes. Hackers constantly seek further knowledge; freely share what they have discovered, and never intentionally damage data.

The intruder is one who breaks into or otherwise violates the system integrity of remote machines with malicious intent. Having gained unauthorized access, crackers destroy vital data, deny legitimate users service, or cause problems for their targets. Crackers can easily be identified because their actions are malicious."

The difference between hacker and intruder might not seem much to the average person because after all divided into two computers and networks not allowed but that is what matters the person made after he infiltrates a network.

7.10 Summary

E-Security is a part of the Information Security framework and is specifically applied to the components that affect e-commerce that include Computer Security, Data security and other wider realms of the Information Security framework. E-security has its own problems. E-commerce and network security are not simple; diligence is needed to prevent loss. Firewalls protect network by permitting only specified traffic to enter it from the outside (from the Internet). In other words, firewalls are a type of access control for networks. Because of the Internet, firewalls have come to play an important role in modern business technologies. A major weakness of firewalls and intrusion detection systems is that they must be managed continuously. Security vendors have made great progress in developing tools that extend protected network into the open e-commerce world; detect would-be intruders; hold users accountable for their actions; stop malicious code encrypted in messages from reaching their targets; and letting the owner of the Web site or application server, decide who gets to access what.

Security issues in e-commerce threaten to derail industry. With the ever increasing cyber threats and the global expansion of e-commerce, the security of the Internet and e-commerce in general will become more vital. There are number of government, organizational and industry initiatives that can assist in providing businesses and consumers' guidance that will help address some of the risk. Everyone has to participate in making the Internet more secure.

7.11 Key Terms

- **E-Security**: It is a branch of computer security specifically related to the Internet, often involving browser security but also network security.
- **Network Security**: It includes systems that protect networks, such as a local area network (LAN) or wide area network (WAN).
- **Intrusion detection**: It can detect and register suspicious activity, alert appropriate personnel and block the anomalous behaviour on the network or its hosts.
- **Digital Signature**: A digital signature is a e-signature authentic authenticated through encryption and password.

- **Security Certificates:** Security certificate is unique digital id used to verify identity of an individual website or user.
- PIN: Personal Identification Number to access funds in a bank account.
- **Information Risks:** They stem from information published and contained in web sites and associated with the conduct of e-commerce.
- **Technology Risks:** They include risks involving hardware, software, telecommunications and databases. It results from the misuse of technology or inappropriate use of technologies.
- **Business Risks**: They are concerned with customer and supplier relationships and risks associated with products and services marketed and distributed over the Internet. They also include risks associated with managerial aspects of the business including personnel and contractual relations.
- **Card Holder's Digital Wallet Software:** Digital Wallet allows card holder to make secure purchases online via point and click interface.
- **Merchant Software:** This software helps merchants to communicate with potential customers and financial institutions in secure manner.
- **Payment Gateway Server Software:** Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.
- **Certificate Authority Software:** This software is used by financial institutions to issue digital certificates to card holders and merchants and to enable them to register their account agreements for secure electronic commerce.
- **Firewall**: A firewall is a software program or piece of hardware that helps screen out hackers, viruses, and worms that try to reach your computer over the Internet.
- **Computer virus**: It is a software program written with malicious intentions which can impede the functioning of computer.
- **Worms:** They are viruses that self-replicate and spread via e-mail or networks.
- **Trojans:** They are seemingly legitimate computer programs that have been intentionally designed to disrupt computing activity or use computer for something did not intend.
- **Intruder**: A hacker or cracker, is another threat to security
- **Hacker**: A person who intensely interested in the workings of any computer operating system. The hackers are most often programmers.

7.12 Self Evaluation Questions

1. What is E-security?
2. What are the areas with which E-security is related to?
3. What are the fundamentals of Computer Security?
4. What factors are to be considered for E-Security Design?
5. What are the measures to be taken to ensure security?
6. Describe various stages in E-security Design.
7. What are the various types of security risks? Explain.
8. Explain different types of E-commerce threats.
9. Discuss various measures to be taken to protect from threats.
10. Write a note on E-banks and security.
11. Enumerate E-security protocols
12. Define the term firewall.
13. Explain various types of firewalls
14. Define the term computer virus
15. Discuss about various types of computer viruses?
16. What to computer viruses do?
17. Discuss various points to be considered to find virus symptoms.
18. What are the preventing measures from virus attacks?
19. Who is an intruder?
20. What are different classes of intruders?
21. List out various examples of intrusion
22. Describe various intruder behaviour patterns
23. What are different intruder techniques?

UNIT - VIII

Mobile Commerce

Learning objectives

After studying this unit the students would be able to understand

- Meaning of mobile commerce
- Challenges faced by mobile commerce
- Position of mobile commerce at global level
- Secured payment through mobile

Contents

8.1 Introduction

Mobile Commerce also known as M-Commerce is viewed as the next generation of E-Commerce which is based on the wireless telecommunication networking technologies and mobile handheld devices, in order to exchange, buy or sell commodities, services or information. M-commerce has been considered as being either one of these concepts – a technology, product or service – or as combination of the three. It has gained increasing acceptance amongst various sections of the society over the years. The reasons for its growth can be traced back to technological and demographical developments that have influenced many aspects of the socio-

cultural behaviour in today's world. The need for mobility seems to be the driving force behind M-Commerce. It allows consumers the ability to conduct commerce, using a mobile device e.g. a mobile handset (cell phone), Personal Digital Assistants (PDA), smart phone and other emerging mobile equipment. It represents an enormous opportunity for businessmen to increase sales and customer loyalty. This is especially true in a dreadful economy that has seemingly remained stagnant. While m-Commerce is still years from being universal in a mass-market industry, those businesses that become early adopters and position themselves ahead of the curve will stand the best chance to reap the benefits from future m-Commerce trends. This Unit would highlight about the challenges of mobile commerce, global mobile e-commerce position, secured payments through mobile and first mobile commerce service.

8.2 M-commerce: Meaning and Definitions

- Mobile Commerce is the subset of e-commerce, which includes all e-commerce transactions, carried out using a mobile (hand held) device.
- Mobile Commerce has been defined as follows: "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."
- M-commerce is defined as "The delivery of trusted transaction services over mobile devices for the exchange of goods and services between consumers, merchants and financial institutions".
- The phrase **mobile commerce** was originally coined in 1997 by Kevin Duffey at the launch of the Global Mobile Commerce Forum, to mean "the delivery of electronic commerce capabilities directly into the consumer's hand, anywhere, via wireless technology." Many choose to think of Mobile Commerce as meaning "a retail outlet in your customer's pocket."
- The use of wireless handheld devices such as cellular phones and laptops to conduct commercial transactions online is called m-commerce.
- M-commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as cellular telephone and personal digital assistants (PDAs)

- Mobile e-commerce (m-commerce) is a term that describes online sales transactions that use wireless electronic devices such as hand-held computers, mobile phones or laptops. These wireless devices interact with computer networks that have the ability to conduct online merchandise purchases. Mobile e-commerce is just one of the many subsets of electronic commerce.
- The term “m-commerce” stands for mobile commerce, and it’s the browsing, buying and selling of products and services on mobile devices. In other words, it’s a complete online shopping experience, but with all the convenience of being on a cell phone or tablet.
- Mobile commerce, sometimes called "M-Commerce," is the process of purchasing or selling items using mobile devices. The buyer can use a variety of electronic devices, such as cell phones, smart phones or portable Netbooks to browse and process orders.

8.3 Characteristics of Mobile Commerce

There are a few characteristics of this type of business that make it a viable choice, even for very small business owners who may have limited resources.

Fast Processing

Mobile commerce allows the user to process a transaction fast. Not only does the customer receive his item almost instantly via download, e-mail or another form of electronic delivery, the businessman receives payment for his product or service more quickly compared to traditional methods. The customer must set up a payment option, such as a credit card or an agreement to pay using a specified account, to process the payment immediately before downloading the item. The speed of delivery is dependent on the reliability of the Internet and network services.

Reduced Business Costs

Mobile commerce also helps reduce costs for the seller. Seller rarely needs to pay for a separate office space, overhead costs or employees. In some cases a small businessman who sets up a mobile commerce operation doesn't need an office at all. The seller can monitor sales online or by receiving statements from a processing service. The main expense for this type of business is advertising to disseminate information on how users can access the product or service. The lowered cost allows the businessman to take advantage of a higher profit. He also can offer the product at a lower price compared to delivery in other formats.

Little need for maintenance

It requires very little maintenance from the seller. The owner sets the product up for mobile delivery one time and then receives payment for sales automatically. From time to time, he may need to perform a few maintenance duties, such as correcting a technology error or updating the product, but overall it is a selling format that requires very little management compared with other selling strategies.

8.4 M-Commerce applications

In the current commerce industry, mobile commerce or M-Commerce has been entered in finance, services, retails, tele-communication and information technology services. In these sectors, M-Commerce is not only being widely accepted but also it is being more used as a popular way of business/ commerce.

- Financial services, which includes mobile banking (when customers use their handheld devices to access their accounts and pay their bills) as well as brokerage services, in which stock quotes can be displayed and trading conducted from the same handheld device
- Telecommunications, in which service changes, bill payment and account reviews can all be conducted from the same handheld device
- Service/retail, as consumers are given the ability to place and pay for orders on-the-fly
- Information services, which include the delivery of financial news, sports figures and traffic updates to a single mobile device

The general m-commerce applications are:

1. *Mobile ticketing*

Tickets can be sent to mobile phones using a variety of technologies. Users are then able to use their tickets immediately by presenting their phones at the venue. Tickets can be booked and cancelled on the mobile with the help of simple application downloads or by accessing WAP portals of various Travel agents or direct service providers. Mobile ticketing for airports, ballparks, and train stations, for example, will not only streamline unexpected metropolitan traffic surges, but also help users remotely secure parking spots (even while in their vehicles) and greatly facilitate mass surveillance at transport hubs.

2. Mobile vouchers, coupons and loyalty cards

Mobile ticketing technology can also be used for the distribution of vouchers, coupons and loyalty cards. The voucher, coupon, or loyalty card is represented by a virtual token that is

sent to the mobile phone. Presenting a mobile phone with one of these tokens at the point of sale allows the customer to receive the same benefits as another customer who has a loyalty card or other paper coupon/voucher. Mobile delivery enables:

- economy of scale
- quicker and easier delivery
- effective target marketing
- privacy-friendly data mining on consumer behaviour
- environment-friendly and resources-saving efficacy

3. Content purchase and delivery

Currently, mobile content purchase and delivery mainly consists of the sale of ring-tones, wallpapers, and games for mobile phones. The convergence of mobile phones, mp3 players and video players into a single device will result in an increase in the purchase and delivery of full-length music tracks and video. Download speeds, if increased to 4G levels, will make it possible to buy a movie on a mobile device in a couple of seconds, while on the go.

4. Location-based services

Unlike a home PC, the location of the mobile phone user is an important piece of information used during mobile commerce transactions. Knowing the location of the user allows for location based services such as:

- local maps
- local offers
- local weather
- people tracking and monitoring

5. Information services

A wide variety of information services can be delivered to mobile phone users in much the same way as it is delivered to PCs. These services include:

- news services
- stock data
- sports results
- financial records
- traffic data and information

Particularly, more customized traffic information, based on users' travel patterns, will be multicast on a differentiated basis, instead of broadcasting the same news and data to all Users. This type of multicasting will be suited for more bandwidth-intensive mobile equipment.

6. Mobile Banking

Banks and other financial institutions are exploring the use of mobile commerce to allow their customers to not only access account information, but also make transactions, e.g. purchasing stocks, remitting money, via mobile phones and other mobile equipment. This service is often referred to as Mobile Banking or M-Banking. More negative issues like ID theft, phishing and pharming are lurking when it comes to mobile banking, particularly done on the mobile web. Net security technology free from redundancy and paradigm shifts away from mobile web-based banking will be an optimal solution to mobile banking in the near future.

7. Mobile brokerage

Stock market services offered via mobile devices have also become more popular and are known as Mobile Brokerage. They allow the subscriber to react to market developments in a timely fashion and irrespective of their physical location.

8. Auctions

Over the past three years Mobile reverse action solutions have grown in popularity. Unlike traditional auctions, the reverse auction (or low-bid auction) bills the consumer's phone each time they place a bid. Many mobile PSMS commerce solutions rely on a one-time purchase or one-time subscription; however, reverse auctions are high return applications as they allow the consumer to transact over a long period of time.

9. Mobile purchase

Mobile purchase allows customers to shop online at any time in any location. Customers can browse and order products while using a cheap, secure payment method. Instead of using paper catalogues, retailers can send customers a list of products that the customer would be interested in, directly to their mobile device or consumers can visit a mobile version of a retailer’s ecommerce site. Additionally, retailers will also be able to track customers at all times and notify them of discounts at local stores that the customer would be interested in.

10. Mobile marketing and advertising

Mobile marketing is an emerging concept, but the speed with which it's growing its roots is remarkable. Mobile marketing is highly responsive sort of marketing campaign, especially

from brands' experience point of view. And almost all brands are getting higher campaign response rates. Corporations are now using m-commerce to expand everything from services to marketing and advertisement. Although there are currently very few regulations on the use and abuses of mobile commerce, this will change in the next few years. With the increased use of m-commerce comes increased security. Cell phone companies are now spending more money to protect their customers and their information from online intrusions and hackers.

8.5 Advantages of m-commerce

This m-Commerce is beneficial for both type of businesses large scale and small scale. The mobile users increase day by day, so through m-Commerce business gets large and growing market place for wide range of goods and services. M-commerce has a number of key factors which add to giving a business an online competitive advantage. In comparison to e-commerce, m-commerce offers both advantages and disadvantages. The following list summarises the ***advantages*** of m-commerce:

1. **Ubiquity:** It means that the user can avail of services and carry out transactions largely independent of his current geographic location. The use of wireless device enables the user to receive information and conduct transactions anywhere, at anytime. Consumers can access products, services and marketing promotions from any Geographical location that allows them to connect to wireless networks.
2. **Accessibility:** Mobile device enables the user to be contacted at virtually any time and place. The user also has the choice to limit their accessibility to particular persons or times. This way the possibility of making sales will increase considerably.
3. **Convenience:** The portability of the wireless device and its functions from storing data to access to information or persons.
4. **Localization:** The emergence of location-specific based applications will enable the user to receive relevant information on which to act. Using the GPS on the wireless device and personalising the content delivered as per suitability.
5. **Instant Connectivity:** This feature brings convenience to the user, due to introduction of services like GPRS which keeps users always in touch and connected. Instant connectivity or "always on" is becoming more prevalent will the emergence of 2.5 G networks, GPRS or EDGE. Users of 2.5 G services will benefit from easier and faster

access to the Internet. Mobile devices are by default always online, there is no time required for booting processes or dial-up.

6. **Personalization:** The combination of localization and personalization will create a new channel/business opportunity for reaching and attracting customers. Personalization will take the form of customized information, meeting the users' preferences, followed by payment mechanisms that allow for personal information to be stored, eliminating the need to enter credit card information for each transaction.
7. **Time Sensitivity** – Access to real-time information such as a stock quote that can be acted upon immediately or a sale at a local boutique.
8. **Security** – depending on the specific end user device, the device offers a certain level of inherent security.
9. **Immediacy**: It provides real time availability of services. The services can be researched and bought in real time. This is particularly important for products and services that require a quick reaction which includes the stockbrokers accessing market information (service) and consumers buying fast selling concert tickets (product).
10. **Pro-active functionality**: The consumer has a constant chose on the frequency of the push notifications they receive from a business.
11. **Simple Authentication Procedure**: Mobile telecommunication devices function with an electronic chip called SIM, which is easily identifiable. This in combinations with an individual Personal Identification Number (PIN) makes the authentication process simple. This means when accessing networks, the user is identifiable, making any further inefficient authentication sign up process irrelevant, making transactions smoother and simpler than traditional e-commerce from a stationary network.
12. **Easy purchase process**. This innovative process makes it easier for consumers the task of purchasing products, since the applications designed for mobile phones are simpler and shows the consumer the specific information of the product he/she needs to buy.
13. **Instant updating of the information**. Thanks to the use of mobile phones, the user can be contacted in whichever moment, the user being able to receive and read instantly the new update sent by the company, without the necessity of being connected to a PC or laptop. This way transactions are speeded up and a lot of time is saved.

14. **Cover wide distance:** Mobile is the only technology which is now become necessary for any person in social and business life than computers. So, it is easy to reach users through m-Commerce.
15. **Savings:** Companies try to reach to the consumer directly through m-Commerce, so users have no need to go far to the store physically and at the end it saves user's time and money.
16. **Easy to use:** There is no need of skilled consumer. Buyers can have look thousands of items on their cell phones and there is no need of online checkout process.

8.6 Disadvantages of m-commerce

Every invention has its own merits and demerits. It is applicable in this m-Commerce business also. The following list summarises the ***disadvantages*** of m-commerce:

1. Smart phone limitation: Mobile has no big screen like desktop or laptops, so sometimes users tired to navigate more and more to choose just one item from thousands. It affects shopping rates.

2. Habituate: Every new technology has some problem at the starting phase. Here m-Commerce is new application, so sometimes people avoid changing which are rapidly changed. As they are habituate to buy products from e-Commerce.

3. Risk factor: Each business has its own risk. Same Mobile commerce is the growing field and a lot of investment in this field is become risky. Because technology change day by day. Moreover, there less security in wireless network, so in data transfer hacking chances are more.

4. Connectivity: Mobile commerce needs high speed connectivity of 3G. Otherwise it is become hectic for user to go through entire product purchase process.

Key Issues of M-Commerce

The success of M-Commerce depends on:

- **Evolution:** Technology and Business models are constantly evolving which will demand flexibility and patience on part of all players.
- **Customer loyalty:** Who will 'own' the customer? Partnerships among players from various industries will be necessary for most, if not all, m-commerce initiatives, and, in turn, will alter the nature of any one company to own their own customers.

- **Cross-sector knowledge gulf**, where the different parties will need to learn about the functions and limitations of the services provided by the other players, for example, operators will need to know about content and applications.
- **Moving up the value chain:** To respond to market opportunities some companies have develop subsidiaries in order to react more rapidly to market challenges. For example, Sonera has developed Sonera Zed, to provide portal and application management services such as location based mobile yellow pages as well Smart Trust, to develop secure solution for m-commerce transactions. And Citicorp has established e-Citi to develop a wireless access gateway strategy for financial service providers.

8.7 Challenges Faced by E-Commerce in India

E-commerce in spite of opportunities and hype also bears the connotations of challenges as well. There are different challenges that e-Commerce businesses are facing in Indian market. Day-by-day, the growth of e-Commerce market in India is expanding. It is true that India's per-capita purchasing power is low, but still the country is the most attractive emerging market for e-Commerce industry. The major problem is that e-Commerce businesses are facing various challenges in the Indian market and it is not easily possible for them to stud their legs in the market and do business. Below are the challenges that faced by e-Commerce businesses in India:

1. Cash on delivery is the preferred payment mode

In India, most of the people prefer to pay cash on delivery due to the low credit card circulation and less trust in online transactions. Unlike electronic payments, manual cash collection is laborious, risky, and expensive.

2. Indian customers return much of the commodities they purchase online

E business in India has many first time buyers. This means that they have not yet made up their mind about what to expect from e-business websites. As a result, buyers sometimes fall prey to hard sell. But by the time the product is actually delivered, they started feeling regret and return the goods. Though consumer regret is a global problem, it is all the more prevalent in a country like India, where much of the growth comes from new buyers. Therefore, customers' regret is the biggest problem in India. For e-Commerce retailers, returns are extremely expensive as it shows some unique challenges and it becomes more difficult in cross-border e-Commerce.

3. Internet Penetration is Low

In India, Internet penetration is quite low as compare to several western countries. Still, the country is a small fraction of what other countries are getting. Further, the quality of connectivity is poor in several regions. But both these problems are on their last legs. The day is not far when connectivity issues would not be a challenges to ecommerce in India.

4. **Feature phones still rule the roost.**

Though the total number of mobile phone users in India is very high, a significant majority still use feature phones, not smart phones. With increasing number of smart-phone users, the demand of online shopping also goes up automatically. The consumer group is still unable to make e-Commerce purchase on the move while the country is still away from the scales tipping in favour of smart-phones. The rapid downward spiral in the price of entry-level smart phones is an encouraging indication.

5. Postal Addresses are not consistent

Once if you place an online order, you will get a call from the company, asking about your exact location. The given address is not enough because there is always a little standardization while writing post addresses. Clearly your address is not enough.

6. Payment gateways have a high failure rate.

Indian payment gateways have an unusually high failure rate by global standards. E-commerce companies using Indian payment gateways are losing out on business, as several customers do not reattempt payment after a transaction fails.

7. Logistics is a problem in thousands of Indian towns

The logistics challenge in India is not just about the lack of standardization in postal addresses. There are thousands of towns that are not easily accessible. Metropolitan cities and other major urban centres have a fairly robust logistics infrastructure. But since the real charm of the Indian market lies in its large population, absence of seamless access to a significant proportion of prospective customers is a dampener. The problem with logistics is compounded by the fact that cash on delivery is the preferred payment option in India. International logistics providers, private Indian companies, and the government-owned postal services are making a valiant effort to solve the logistics problem.

8. Overfunded competitors are driving up cost of customer acquisition

It is important to note that ecommerce giants are increasingly attracted to India. The long-term prospects for ecommerce companies are so exciting that some investors are willing to spend irrationally high amounts of money to acquire market share today. Naturally, the Indian consumer is spoiled for choice. Cross-border ecommerce to India is growing, and many large international players are also making a significant investment in setting up shop in India.

10. Absence of Cyber Laws

Another challenge associated with e-commerce market is the near absence of cyber laws to regulate transactions on the Net. WTO is expected to enact cyber laws soon. The India's Information Technology Act 2000 intends to tackle legislatively the growing areas in e-commerce. It also intends to facilitate e-commerce by removing legal uncertainties created by the new technology. However, it does not take care of issues such as individual property rights, content regulation to privacy and data protection specific legislation.

11. Privacy and Security Concern

To-day, vulnerable issues related to e-commerce are privacy and security. So far, there is no protection offered either by Website or outside watchdogs against hazard created by exploiting one's privacy. Even more than with Internet-based e-commerce, ordinary users worries about the safety and reliability of conducting business over a wireless connection. Users will engage in e-commerce only if they trust that the transactions made through their devices are secure."

12. Payment and Tax Related Issues

The electronic payment is made through credit card or plastic money which could, however, not become popular so far in India mainly due to two reasons. First, the penetration of credit card in India is very low. Second, the Indian customers are quite sceptical of paying by credit card with the increasing threat of fraud played by hackers. Credit card could not gain growth in India mainly because of authentication and recognition problems of electronic signatures. Establishing tax incidence in case of e-commerce transactions becomes difficult. Thus, it provides ample scope for tax evasion.

13. Digital Illiteracy and Consumer Psyche

Digital illiteracy is one of the formidable problems e-commerce is facing in India. Computer brain – drain is another problem. The Indian consumer is also characterised by his

unique psyche. Usually, the Indian consumer does not go long distances for having any article of his choice when a neighbourhood store provides him whatever he wants. Building trust on the electronic media also takes long time more especially when the vendor is situated at a very far off place.

14. Virus Problem

That computer virus is also a formidable problem in the execution of e-transactions is confirmed by the computer virus originated in Manila. A computer virus lagged' I Love You' originated in Manila, Philippines on May 5. 2000 rippling across world, inflected millions of computer files causing colossal loss of US $7 billion to the governments and the businesses. The offenders causing 'virus' must be awarded deterrent punishment, otherwise similar assaults in future can cause lasting blows to the quite young e-commerce in India as well.

15. English Specific

Last but not the least, the software so far in the country is English specific. But, in order to make e-commerce reach to the mass, it needs to be available in the languages (regional) of the mass to enable them to adapt e-commerce processes in their operations. Sooner it is done, better will be it for small enterprises too to adapt e-commerce.

8.8 The Problems of m-Commerce

One of the most promising value-added services for mobile phones is *m-commerce*—the ability to make purchases or conduct financial transactions by using a mobile phone. M-commerce could be particularly important in India, where only a small fraction of the population currently has either a bank account or a credit card.

Several Indian banks have introduced "mobile banking" services for their customers. For example, ICICI Bank, ABN Amro, and Barclay's India have launched mobile services that allow customers to check their account balances, pay bills, and transfer funds. Similarly, Airtel has partnered with several Indian banks and VISA to provide mobile bill payment, money transfer, and prepaid phone recharge service. Movie tickets and tickets for sports events can now be booked using mobile phones, and the Indian Railway system has announced plans for a scheme to allow passengers to make reservations for rail travel through their mobile phones.

Applications such as these demonstrate the potential of m-commerce, but they are relevant primarily for urban residents who already have bank accounts and credit cards. It is

recognized that several existing barriers will have to be overcome if m-commerce is to emerge as a viable option for the country's entire population. These barriers include the following:

Lack of awareness

Only a few practical m-commerce applications currently exist, although the number has begun to increase. As a result, there is relatively little consumer awareness about the value of m-commerce.

Lack of a simple, standardized payment mechanism

There is no equivalent in India of the credit card or ATM to provide an easy way to make payments or transfer funds via a mobile phone. Several countries (such as Japan, but not the United States) have already developed phone-based "mobile wallets,"

Imbalance between service providers and network operators

At present, there are many small service providers who must depend on a relatively few large mobile network operators to reach customers. Because of this imbalance, the operators are able to capture the lion's share of the revenues generated by value-added services. In addition, service providers complain that it is difficult to negotiate deals and to arrange for prompt settlements from operators who are focused on attracting more subscribers rather than increasing the revenue per subscriber.

Heterogeneous environment

Another challenge for service providers is that they must develop applications for multiple networks and a wide range of devices. Without standardization, developing m-commerce applications can be prohibitively expensive.

Lack of high speed connections

Access to high-speed networks is important to providing "rich" applications.

Even in the face of these barriers, creating useful m-commerce applications that can serve a wide audience is still possible. Some of the most promising applications are based on the use of SMS text messaging—which is relatively simple, works on most mobile phones, and does not require a high-speed connection.

8.9 Global Mobile E-Commerce

Nir B. Kshetri (2001) reported that globalization and the Internet have the potential to offer several benefits to individuals and organizations in developing as well as developed countries. Apart from economic benefits such as more choices and the convenience of shopping

at home, they can also make progress on educational and scientific development, mutual aid, and world peace; foster democracy; and offer exposure to other cultures.

All countries are not likely to benefit equally from the virtuous circle of Internet diffusion created by globalization and multiple revolutions in Information and Communication technologies. Forces influencing the global e-commerce include economic factors, political factors, cultural factors and supranational institutions. Economic factors mainly influence perceived relative advantage of Internet use whereas political and cultural factors influence the compatibility of the Internet with a society.

International institutions are influencing the price, quality and availability of ICT products and services, laws, regulations and policies mainly in developing countries, making them more compatible with Internet use. The influences of these factors on Internet adoption in general and the three phases of online transaction advertising and searching phase, payment phase and delivery phase are presented in the following table**.**

8.9.1 Factors influencing the distribution and forms of Global e-commerce

Stage	Economic and infra structure related factors	Socio cultural factors	Political legal factors	Supranational institutions
Internet adoption	Per capita GDP	Literacy rate and computer skill	The internet's democratic nature incompatible with authoritarian political	UNDP-introduction of the internet in many countries.
	Availability of telephone and computer	English language skill	structures	GATS-competition in telecom sectors
	Pricing structure	Viewed as a tool of cultural imperialism in some	Tariff and non-tariff barriers to ICT products	ITA- reducing the price of ICT products.
Buying/selling online	Availability of credit	Intellectual property protection	Redress mechanisms in case of problems in online transactions	UNCITRAL model law
Advertising and searching phase	Operating speed of computer and modern size	Influence of language and symbols used on site visited and purchase decision	Ban on some website in authoritarian regimes	Products can be advertised and searched globally on GTPN of UNCTAD
Payment phase	Penetration rate of credit cards	Forms of payment: check, wire transfer, cash on delivery etc,	Governments' concern on the outflow of foreign currency.	UNCTAD smart card
Delivery phase	Delivery means	Products stolen	Tariff and non- tariff	Electronic delivery

Commented [A1]:

	and infrastructure	some countries	barriers	free of custom duties in WTO member

8.9.2 Growth of mobile e-commerce at global level

Leaving your smart phone at home today is like leaving the house without your shoes on. It's oddly unsettling and anyone in this predicament would likely feel a little lost until they get that device back in their hands.

But as much as the smart phone has become an extension of a person's everyday habits, consumers are still turning to smart phones to browse more than they are to shop. But that's not the case globally. The U.S. is just "average" when comparing mobile commerce figures, according to Melissa O'Malley, director of global merchant and cross border trade initiatives for PayPal.

"People don't associate their phone with making phone calls. They associate it with something that's transactional — whether it's transactional because they can text somebody, because they can buy something, they can share something. It's becomes a really utilitarian device," she said in a interview with MPD CEO Karen Webster on the eve of releasing the results of their mobile commerce study with Ipsos.

The global e-Commerce industry saw impressive growth in 2014 with goods and services worth $1.5 trillion bought by shoppers via desktops, tablets and smart phones. Advertisers are now spending an increasing proportion of their marketing budgets on Internet advertising. This ad spend is forecast to surpass $160 billion in 2015, of which more than $58 billion will be spent on Display advertising. (Source: e-Marketer). It is believed that 2015 will be another exciting year for the e-Commerce industry as mobile shopping further matures.

To fully understand the shifting global mobile commerce behaviour, here are the top takeaways from PayPal's report about global mobile commerce:

1. **M-Commerce Growth Is Outpacing E-Commerce**

   Everyone instinctively understands that mobile commerce is growing and growing fast. But now we have some facts to back that up. It is also evident that Mobile shopping is on target for meteoric growth. Mobile commerce is growing at three times the rate of e-commerce."

2. Mobile Commerce Leaders

When it comes to both online shopping and smart phone-shopping density figures, China, Turkey and the UAE regions by far surpass any other. According to PayPal's reports, in the UAE, mobile shopping makes up for 24 percent of overall online spending. In China, that number is 21 percent and Turkey is in third at 19 percent. In terms of smart phone-shopping density, more than 68 percent of Chinese online consumers said they've used their mobile devices to make purchases on a smart phone in the past year. The number is only slightly lower for UAE shoppers at 57 percent and 53 percent for Turkish consumers. But in the U.S. the number is roughly cut in half, with only 31 percent of consumers reporting that they've used their smart phones to shop in the past 12 months.

3. 33 Percent of Online Shoppers Say they've Used A Smartphone to Make A Purchase

According to PayPal's report, the surge in projected smart phone shopping growth comes from young adults. Overall, a third of online shoppers surveyed said they've used their smart phone for making an online purchase in the past 12 months. And that increase in mobile shoppers is being driven by smart phone shoppers between the ages of 18-34 (59 percent of smart phone shoppers in that age bracket reported using mobile to shop online).

4. 64 Percent of Consumers Have Used Mobile Apps for Shopping

PayPal reports that globally, 64 percent of smart phone users reported using an app for purchases as opposed to the 52 percent who used mobile browsers. The reasons cited for that are two: convenience and speed. Convenience was cited by 35 percent of users and speed by 30 percent. Instant payment confirmation and having a reminder in the app to use discounts or coupons were two other major reasons cited by those surveyed. The merchants need to decide if they need an app strategy. It is important because more people are more likely to buy from an app from a browser than a phone.

5. Mobile Spending

PayPal's research shows that across its 22 global markets, the rate of mobile spending is projected to rise by roughly $190 billion over the next three years. The 2013 mobile spending figure for mobile shopping in 2013 was roughly $102 billion, which is anticipated to hit $291 billion in 2016. In terms of actual mobile shopping behaviours today, 36 percent of consumers say they use mobile to get info on a product, 27 percent use mobile to find a business and 25 percent use devices to read reviews on particular stores or products. But

consumers revealed that in the future, they are interested in using their smart phones for more mobile-centric tasks.

6. Barriers to mobile e-commerce growth

PayPal reported that the top barrier to mobile commerce is the size of the screens. While that is changing, particularly in the U.S. with the launch of the iPhone 6 Plus, many of the smart phone users (39 percent) surveyed said they prefer to use a laptop or desktop because of screen size and website functionality. Security was another top concern named, as 21 percent of those surveyed had security concerns when it came to using a mobile device to shop online. The data also shows that the shift from smart phones and tablets is expected to change even during the near future. With the advent of low-cost mobile phones, larger screen sizes and mobile device security improvement, the barriers to mobile commerce will decrease. Those improvements combined with streamlined digital options will make it easier, more secure and more intuitive for customers to pay with their mobile phone.

7. Mobile share of e-Commerce transactions grow significantly globally:

Mobile share of online sales grew steadily in 2014. In future it is expected that mobile devices to account for 40% of e-Commerce transactions globally and more than 50% in the developed markets including the US, UK and Japan. In addition, new mobile payment services, particularly Apple Pay, will accelerate consumer willingness to make purchases via their mobile phones in 2015. As mobile share of e-Commerce transactions grows, mobile will also attract a greater share of digital ad spending.

8. Cross-device marketing will be real and drive significant value

Marketers know that consumers are increasingly taking a multi-device path to purchase, but it has been difficult to tell if the person who saw an ad on a smart phone and later made the purchase on a tablet was the same user or a new customer. In 2015, the complexities around cross-device advertising will disappear with the availability of more precise exact-match methods. Retailers will be able to differentiate between existing users and new prospects through a single view of consumers' shopping behaviour across desktops, tablets and smart phones. This will enable delivery of relevant, personalized ads to users across devices with accuracy and scale.

9. Programmatic buying will drive rapid growth in native advertising

In 2015, native ads will become scalable and measurable as IAB standard ad units and therefore native ad inventory will grow significantly. An increasing number of technology providers are now offering services to publishers to help them integrate native ads that look consistent with their website or mobile app, in the exact same way Facebook sells its "News Feed" ads. This will start to happen in 2015 using technologies that build ads on the fly and driven by demand generated through programmatic buying which make native ads implementation a lot easier than it used to be.

10. Brick-and-mortar retailers will focus even more on online strategies

E-Commerce will become "do or die" for brick-and-mortar retailers in 2015 as they experience the increasing impact of shopper “webrooming” and “showrooming” behaviour. At least 10-15% of in-store sales can be directly attributed to webrooming — shoppers gathering product information online and deciding which products to buy online but then going to the store to make the purchase. Similarly, there’s a contrasting showrooming trend with many shoppers visiting the store to find, try and gather information on the products, and eventually buying online. This will also help retailers create more touch points with consumers, and develop insights on how they can engage with store visitors before they enter the store, in the store and after they leave the store.

11. Mobile apps focus will shift to re-engagement

While app installs will continue to be important in 2015, mobile app marketers will start to focus more on re-engaging with users who have previously installed the app but are not using it. The cost of driving an app install has increased over the last year as demand has increased on Facebook and RTB platforms. Retailers, who until now focused heavily on increasing their app-installed bases, will pay more attention to improving app usage and re-visits from existing users. Automated ad formats will offer even greater flexibility. Technological shift will allow advertisers to effortlessly access a significantly greater part of the inventory available around the world and make it a lot easier to scale campaigns internationally.

12. **Acquisitions and consolidations will continue to intensify in the ad-tech industry**

In 2014, a number of big acquisitions including that of Tap Commerce by Twitter, Flurry by Yahoo, LiveRaiil by Facebook and Conversant by Alliance Data. Consolidation in

the ad-tech space will continue in 2015, driven by advertisers' demands for global scale and comprehensive solutions. This consolidation will make it simpler for e-Commerce marketers to identify marketing solutions that meet their objectives.

To conclude, there will be risks and opportunities for marketers as online shopping becomes more complex. The success and failure of marketers will depend on their ability to use key technologies and to reach always-on consumers with personalized messages, across devices and at scale. With growing opportunities to sell internationally, e-Commerce companies should partner with technology companies that can enable them to run online ad campaigns with rich targeting and optimization capabilities at a truly global scale.

8.10 Secured Payments through Mobile

Information technology and payment systems have witnessed the introduction, acceptance and wide scale deployment of electronic payment systems. The payment system ecosystem has now witnessed the introduction of mobile payment systems and their associated services. Major actors involved in mobile payment systems include telecom operators, banks, merchants and consumers. They need to aggregate their resources and develop a coherent ecosystem which would help the individual actors while also benefiting the overall mobile payment ecosystem. Financial institutions and mobile carriers are becoming increasingly interested and have started collaborating in order to provide mobile payment capabilities which would pave the way for the migration of payment systems from card-based to phone-based. In a developing country like India, mobile payment systems have experienced rapid growth, deployment and acceptance in a very short span of time. However, these systems are still far from mature and need to be customized and refined further in order to replace or equal the deployment and acceptance of electronic payment systems. Mobile payment services are primarily centred on the unbanked population but also consider the existing population with active bank accounts especially in developing countries.

Mobile commerce is a natural successor to electronic commerce. The capability to pay electronically coupled with a website is the engine behind electronic commerce. Electronic commerce has been facilitated by automatic teller machines (ATMs) and shared banking networks, debit and credit card systems, electronic money and stored value applications, and electronic bill presentment and payment systems.

Mobile payments are a natural evolution e-payment schemes that will facilitate mobile commerce. A mobile payment or m-payment may be defined as any payment where a mobile device is used to initiate, authorize and confirm an exchange of financial value in return for goods and services (Au and Kauffman, 2007).

Mobile devices may include mobile phones, PDAs, wireless tablets and any other device that connect to mobile telecommunication network and make it possible for payments to be made.

Mobile payments can become a complement to cash, cheques, credit cards and debit cards. It can also be used for payment of bills (especially utilities and insurance premiums) with access to account-based payment instruments such as electronic funds transfer, Internet banking payments, direct debit and electronic bill presentment.

8.10.1 Mobile Payment Characteristics

A mobile payment service in order to become acceptable in the market as a mode of payment the following conditions have to be met:

a) **Simplicity and Usability**: The m-payment application must be user friendly with no learning curve to the customer. The customer must also be able to personalize the application to suit his or her convenience.

b) **Universality:** M-payments service must provide for transactions between one customer to another customer (C2C), or from a business to a customer (B2C) or between businesses (B2B). The coverage should include domestic, regional and global environments. Both low value micro-payments and high value macro-payments must be possible.

c) **Interoperability:** Development should be based on standards and open technologies that allow one implemented system to interact with other systems.

d) **Security, Privacy and Trust:** A customer must be able to trust a mobile payment application provider that his or her credit or debit card information may not be misused. Secondly, when these transactions become recorded customer privacy should not be lost. Mobile payments have to be as anonymous as cash transactions. Third, the system should be fool proof, resistant to attacks from hackers and terrorists. This may be provided using public key infrastructure security, biometrics and passwords integrated into the mobile payment solution architectures.

e) **Cost:** The m-payments should not be costlier than existing payment mechanisms. An m-payment solution should compete with other modes of payment in terms of cost and convenience.

f) **Speed:** The speed at which m-payments are executed must be acceptable to customers and merchants.

g) **Cross border payments:** To become widely accepted the m-payment application must be available globally.

8.10.2 Mobile Payment Solutions

Mobile payment solutions may be classified according to the type of payment effected, and based on the technology adopted to implement the solution. There are a variety of combinations of these frameworks – technology adopted and mode of payment, a survey of which would constitute a study in itself. There are three different models available for m-payment solutions on the basis of payment (Lim, 2007):

a) Bank account based

b) Credit card based

c) Telecommunication company billing based

Bank Account based M-Payment

In this model, the bank account is linked to the mobile phone number of the customer. When the customer makes an m-payment transaction with a merchant, the bank account of the customer is debited and the value is credited to the merchant account.

Credit Card based M-Payment

In the credit card based m-payment model, the credit card number is linked to the mobile phone number of the customer. When the customer makes an m-payment transaction with a merchant, the credit card is charged and the value is credited to the merchant account.

Telecommunication Company Billing of M-Payments

Customers may make payment to merchants using mobile phone and this may be charged to the mobile phone bills of the customer. The customer then settles the bill with the telecommunication company. This may be further classified into prepaid airtime (debit) and post-paid subscription (credit).

Technologies for Mobile Payments

The mobile technology landscape provides various possibilities for implementing m-payments. Essentially, a GSM mobile phone may send or receive information (mobile data service) through three possible channels – SMS, USSD or WAP/GPRS. The choice of the channel influences the way m-payment schemes are implemented. Secondly, the m-payment client application may reside on the phone or else it may reside in the Subscriber identity module (SIM)

Short Message Service (SMS)

SMS can be used to provide information about the status of one's account with the bank (informational) or can be used to transmit payment instructions from the phone (transactional).

Unstructured Supplementary Services Delivery (USSD)

Unstructured Supplementary Service Data (USSD) is a technology unique to GSM. It is a capability built into the GSM standard for support of transmitting information over the signalling channels of the GSM network. USSD provides session-based communication, enabling a variety of applications.

WAP/GPRS

General Packet Radio Service (GPRS) is a mobile data service available to GSM users. GPRS provides packet-switched data for GSM networks. GPRS enables services such as Wireless Application Protocol (WAP) access, Multimedia Messaging Service (MMS), and for Internet communication services such as email and World Wide Web access in mobile phones.

Dual Chip

Usually the m-payment application is integrated into the SIM card. If the m-payment application service provider has to write an m-payment application in the SIM card, this has to be done in collaboration with the telecommunications operator (the owner of the SIM). To avoid this, dual chip phones have two slots one for a SIM card (telephony) and another for a payment chip card. Financial institutions prefer this approach as they can exercise full control over the chip and the mobile payment process. But, customers would have to invest in dual chip mobile devices.

Mobile Wallet

M-payment application software that resides on the mobile phone with details of the customer which allows the customer to make payments using the mobile phone is called as a

mobile wallet. These solutions allow storing your Credit/Debit card information in an App and use the App to pay for physical goods, typically with a Tap. They typically use NFC technology in the background, and allow payments to be made seamlessly without even a physical Contact. The most prominent example is **Google Wallet** and **Isis**, however this is a very nascent concept and still to make way into India in a big way. However, there are a few companies working on this area. **Ara eTap** (NFC-enabled Tap-and-Pay Tag =ara eTap), **iKaaz** and then VISA Seems to be doing something with **Movida**.

Instant Money Transfer Solution from RBI

RBI has been very aggressive towards financial inclusion, and they pegged their confidence on Mobile. RBI Promoted **National Payment Corporation of India** (NPCI) has built **Immediate Payment Service (IMPS)** system. IMPS is a network of banks, and the system allows to transfer money using just the mobile number and a 7-Digit code called MMID.

Mobile Money

Mobile Money is again a concept where mobile phone can be used to transfer money. Typically these networks are run by Mobile Operators. Biggest success story in the world in this area is **MPesa** from SafariCom in Kenya (M-Pesa). Given the success of this, a lot of other mobile operators jumped into this business. In India we have **Airtel Money** and **mRupee** (by Tata).

Money Remittance

They companies allow money to be transferred from one location to another using Mobile. Most famous company in this regard in India is **Eko**. Eko now has support from **Bill & Melinda Gates Foundation**. There are other companies such as **Fino** and **A Little World** also working in this space.

Mobile Utility Payments

These are quick ways to pay utility Bills etc. Such as Recharge, Electricity Bill, Phone bills etc. One example in India is NGpay.

Mobile POS Devices

Mobile POS Devices are small devices which can be plugged into your phone (typically through Audio Jack) and this allows accepting payments using physical cards such as Credit Cards, Debit Cards etc. Everyone seems to be in this business, PayPal, Intuit. But one company which became extremely popular is Square (Accept credit cards with your iPhone, Android or

iPad). In India, the following companies are working in exact same space, (Ezetap), MSwipe (Mswipe) and Mobile Cozy (or Asaan Pay, AasaanPay).

8.11 First Mobile Commerce Service

Mobile commerce was introduced back in 1997 when Coca Cola installed the first two mobile phone enabled vending machines in Finland. They were able to send mobile payments to the vending machines via SMS text messages. It was in the same year and country that an m-Commerce based banking service was introduced as well.

The first m-Commerce internet platform was launched in 1999 by a Japanese company called I-mode. I-Mode would be similar to T-Mobile's web2go browsing interface which allows users the ability to browse the net, view email, download games and access other services.

Below is a list of m-Commerce and mobile related statistics: m-Commerce History and Current Statistics

• China has the world's largest mobile market with more than 750 million subscribers

• 50 million iPhones have been sold as of April 8, 2010

• In 2013, the number of mobile phone users in the US is predicted to reach 255 million, representing 80% of the population

• Brazil was the BRIC country with the lowest number of mobile phone subscribers with only 174 million in 2009

• Purchasing "Train or Plane Tickets" (30%) was the most popular m-Commerce application in France in 2009

• 6 out of the top 10 selling iPhone apps are related to shopping

• Japan's m-Commerce exceeded $10 billion in 2009, compared to $1.2 billion in the US.

Evolution of M-Commerce Despite of huge popularity of mobile commerce, it is yet in the initial stage and can be further expanding in to all the fields, which affect the human life. The assumption of mobile commerce is not as young as it mushroomed so early from adopting this technology. It initially begins with the use of wireless POS (Point Of Sale) swipe terminals and has since then made its way into cellular phones and PDA's (Personal Digital Assistants). The first enabling m-commerce technologies were presented through Wireless Application Protocol (WAP) and i-mode mobile Internet service. WAP builds on digital phone technology and first emerged on 2.5 G phone technology that allowed users to browse the Internet. This technology cemented the way of m-commerce, which has strongly developed on 3G-phone technology. The

future of m-Commerce seems extremely bright because several experiments are going on to introduce the upgraded version of mobile likely to emerged with the evolution of 4G mobile technology.

8.12 Summary

Mobile phones and mobility have enabled the users to reach any person from any location at any time. Mobiles phones allow the users to send and receive information instantly anywhere in the world. It provides essential information and enables business organizations to make important and informed business decisions. Mobile commerce is considered and recognized as the next business opportunity. Mobile commerce refers to any transaction with monetary value conducted using a mobile device and mobile networks. Globalization, changes in consumer behaviour, technological changes and increase in competition pose many challenges to business organizations. The basic idea behind mobile commerce is to reach suppliers, customers, employees and business associates at any time and any location. Mobile phones allow customers to track their account and credit card transaction. Bills can be paid by the customers domestically and abroad by using mobile phones. Customers can also transfer funds between accounts and read e-mail and any messages that is sent to them from business organizations.

8.13 Key Terms

1. **M-commerce** – It is the browsing, buying and selling of products and services on mobile devices.
2. **Mobile Banking** – Banks and other financial institutions are exploring the use of mobile commerce to allow their customers to not only access account information, but also make transactions.
3. **GPRS** – General Packet Radio Service (GPRS) is a mobile data service available to GSM users. GPRS provides packet-switched data for GSM networks.
4. **IMPS** – Immediate Payment Service is a network of banks, and the system allows transferring money using just the mobile number and a 7-Digit code called MMID.
5. **Mobile Money** – It is a concept where mobile phone can be used to transfer money.
6. **M-business** – It is the use of mobiles or wireless devices in the conduct of all business activities of a firm both internally or externally in relation with its customers, suppliers, partners and other stakeholders.

7. **Mobile POS Devices** – They are small devices which can be plugged into your phone (typically through Audio Jack) and this allows accepting payments using physical cards such as Credit Cards, Debit Cards etc.
8. E-Commerce Most popular, doing transaction on Internet
9. T-Commerce Re-charge Commercials for Setup box mainly include Television
10. V-Commerce Using voice commands to do transactions
11. P-Commerce Proximity commerce using blue tooth or infrared technology
12. U-Commerce - It is a combination of e-commerce, m-commerce, and t-commerce, along with the conventional brick and mortar enterprises. It can be defined as the seamless integration of all types of models encapsulated to deliver services cantered on the user

8.14 Self Evaluation Questions

1. Define m-commerce
2. State the characteristics of m-commerce
3. Give an account of m-commerce applications
4. What is mobile ticketing?
5. What is mobile banking?
6. What is mobile brokerage?
7. What is mobile marketing and advertising?
8. What are the advantages of m-commerce?
9. Bring out the disadvantages of m-commerce
10. Write a note on key issues of m-commerce
11. Describe the challenges faced by e-commerce in India
12. Explain the problems of m-commerce
13. State the factors influencing the distribution and forms of global e-commerce
14. Write an essay on growth of mobile e-commerce at global level
15. State the mobile payment characteristics
16. Discuss mobile payment solutions
17. What is USSD?
18. What is meant by dual chip?
19. What is mobile wallet?
20. Briefly explain the evolution of first mobile commerce service

GLOSSARY OF E-COMMERCE TERMS

1. **Affiliate Tracking**: Software that tracks clicks, sales or other performance measures to determine revenue sharing or commission.
2. **Anti-virus program***:* Software designed to detect and eliminate viruses before they have had a chance to wreak havoc within the system.
3. **Authentication:** This refers to the verification of the authenticity of either a person or of data.
4. **Authorization:** The process whereby a person approves a specific event or action.
5. **Browser:** A client to a web server that allows the user to read hypertext documents on the World Wide Web. Netscape Navigator and Microsoft Internet Explorer are examples of popular web browsers.
6. **Bug:** A fault in a computer system usually associated with software.
7. **Business–to-Business (B2B) e-commerce:** It is simply defined as e-commerce between companies. This is the type of e-commerce that deals with relationships between and among businesses.
8. **Business-to-Consumer (B2C) e-commerce:** It is commerce between companies and consumers, involves customers gathering information; purchasing physical goods (i.e., tangibles such as books or consumer products) or information goods (or goods of electronic material or digitized content, such as software, or e-books); and, for information goods, receiving products over an electronic network
9. **Business-to-Government (B2G) e-commerce:** It is generally defined as commerce between companies and the public sector. It refers to the use of the Internet for public procurement, licensing procedures, and other government-related operations.
10. **Caching**: The storage of web files on a computer or server so they can be accessed quicker by the end user.
11. **Certification authority:** A trusted third party clearing house that issues digital certificates and digital signatures. Such certificates include an organization's name, a serial number, expiry date.
12. **Common gateway interface (CGI):** CGI is a programming method of passing information between a website and applications program and vice versa. There are

significant security risks in implementing CGI scripts using scripting languages such as Perl.

13. **Computer viruses***:* These are pieces of programming code which have been purposely written to inflict an unexpected result upon some other program.
14. **Consumer-to-consumer e-commerce or C2C** is simply commerce between private individuals or consumers.
15. **Consumer-to-business (C2B)** transactions involve reverse auctions, which empower the consumer to drive transactions.
16. **Cookie:** A small identifier file placed on a user's computer by a website, which logs information about the user and their previous/current visits for the use of the site next time the user makes contact. The website owners claim that this is beneficial to the user, allowing faster access, and 'personalization' of the site for that user.
17. **Cracker:** This is either a piece of software (program) whose purpose is to 'crack' the code to, say a password, or refers to a person who attempts to gain unauthorised access to a computer system.
18. **Credit card:** A bank-issued card that allows consumers to purchase goods or services from a merchant on credit.
19. **Cryptography:** The application of mathematical theory to develop techniques that can be applied to data to ensure goals such as confidentiality, data integrity and/or authentication.
20. **Cyber crime:** Cyber crime is any criminal activity which uses network access to commit a criminal act.
21. **Cyber money:** *E-money* that is transferred via telecommunications networks such as the *internet.*
22. **Debit card**: Card enabling the holder's purchases to be directly charged to an account at a deposit-taking institution.
23. **Decrypt:** The process of converting encrypted data or text back to plain data or text.
24. **Decryption:** The process by which encrypted data is restored to its original form in order to be understood/usable by another computer or person.

25. **Denial of service:** Denial of service (DoS) is an action against a service provider over the internet whereby a client is denied the level of service expected. DoS attacks do not usually have theft or corruption of data as their primary motive.
26. **DES:** Data Encryption Standard
27. **Digital**: A method of representing data via discrete, well-defined samples (of *analogue*)
28. **Digital Cash:** Money, in the form of information that can be stored in electronic wallets or on smart cards. Digital cash systems have been designed for use on the Internet for so-called "micropayments" - payments for goods that are too inexpensive to be paid for by credit cards.
29. **Digital certificate:** The electronic equivalent of the handwritten signature and unique to the holder. A digital certificate is the electronic version of an ID card that establishes a person's credentials and authenticates a connection when performing e-commerce transactions over the internet, using the web. It can be used to validate digital cheques and other payment instructions (of *digital signature* and *smartcard*).
30. **Digital cheque**: An internet-based payment system, eg *PayPal*.
31. **Digital signature:** A digital signature is an electronic equivalent of an individual's signature. A string of data generated by *cryptography* attached to a message to ensure its authenticity and protect the recipient against repudiation by the sender. It authenticates the message to which it is attached and validates the authenticity of the sender. In addition, it also provides confirmation that the contents of the message to which it is attached, have not been tampered with, en route from the sender to the receiver.
32. **Directory:** A search service that arranges the web pages in it's database (often through a registration process) into categories and subcategories.
33. **Domain Name:** An unique name that identifies an internet website.
34. **Download:** The transfer of data from a host computer to a client computer over a network, in this case, the Internet.
35. **E-banking**: Banking operations conducted using the *internet*.
36. **eBay:** A prominent *internet*-based auction system.
37. **E-broking**: The processing of orders for purchase and sale of share sent to *brokers* from customers using the *internet*.

38. **E-business:** It is the transformation of an organization's processes to deliver additional customer value through the application of technologies, philosophies and computing paradigm of the new economy.
39. **E-Cheque:** An electronic version paper cheque.
40. **E-Commerce**: It refers to a wide range of online business activities for products and services. It also pertains to "any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact.
41. **E-Commerce contract:** Contract entered through internet.
42. **Electronic Data Interchange (EDI):** Computer-to-computer exchange of business documents between business organizations in a standard format. EDI is used for the transmission of business transactions in computer readable format.
43. **Electronic Wallet:** Also called a virtual wallet, a software mechanism that allows commerce server users to store and use credit card and electronic payment information.
44. **E-finance:** The provision of financial services over the *internet* or other public electronic media. This includes money, banking, payments, trading, broking, insurance etc. Also known as “digital finance”
45. **EFT:** (Electronic funds transfer) A standard mechanism for electronically transmitting funds between two parties.
46. **E-insurance**: Insurance operations conducted using the *internet*.
47. **Electronic signature:** It is a sign expressed in the shape of a letter, sign, number or digital mark that is logically linked with electronic documents, and which testifies to the veracity and validity of these documents.
48. **E-markets** are simply defined as Web sites where buyers and sellers interact each other and conduct transactions
49. **E-money**: Money stored electronically in a device such as a *smartcard* or *SVC*, or as *cybermoney*.
50. **Encryption:** The process by which data are temporarily re-arranged into an unreadable or unintelligible form for confidentiality, transmission, or other security purposes.
51. **E-tailing**: Retailing on web is called e-tailing
52. **E-trading**: Use of electronic means for transforming orders into trades. It is that part of e-commerce which specializes in financial services. It deals in corporate paper (e.g.

stocks and shares), purchase of commodities, currencies etc. It can be business-to-consumer or business-to-business.

53. **Extranet:** An extranet is a private network which uses the internet protocols and extends beyond an organization's premises, typically to allow access by clients, suppliers, or selected third parties.
54. **File transfer protocol (FTP):** Protocol used for transferring any file like .doc, .bmp, .jpeg.
55. **Firewalls***:* Firewalls are security devices used to restrict access between two communication networks.
56. **Gateway:** It is the common term used for both software and related hardware that supports the exchange of electronic documents and messages.
57. **General Packet Radio Service (GPRS):** It is a connectivity solution based on Internet protocols that supports a wide range of enterprise and consumer applications.
58. **Global System for Mobile Communication (GSM):** An open digital cellular technology used for transmitting mobile voice and data services.
59. **Hacker:** An individual whose primary aim is to penetrate the security defenses of large, sophisticated, computer systems.
60. **Host:** A computer running Internet protocols that can act as either a client or a server on the Internet.
61. **HTTP:** This protocol, the Hyper Text Transfer Protocol, is used for the transmission of information, graphics, sounds and animation between a client web browser and the web-server.
62. **Internet:** A publicly accessible wide area network that can be employed for communication between computers.
63. **Internet Protocol (IP):** The network layer protocol on which the Internet is based.
64. **Internet service provider (ISP):** An internet service provider – commonly referred to as an 'ISP' – is a company which provides individuals and organizations with access to the internet, plus a range of standard services such as e-mail and the hosting (running) of personal and corporate websites.
65. **Intranet:** An *internet*-like system only operating within a single organisation. A local area network within an organization, which is designed to look like, and work in the same

way as, the internet. Intranets are essentially private networks, and are not accessible to the public.

66. **Intrusion:** An uninvited entry into a system by an unauthorized source.
67. **Intrusion detection system (IDS):** Intrusion detection systems are complex software applications, which monitor network activity.
68. **Link:** It means a URL hidden behind a formatting option that may take the form of a colored item of text, logo or image, and which allows a user to automatically move between WWW pages, WWW sites or within a WWW document.
69. **Logic bomb:** A logic bomb is a piece of program code buried within another program, designed to perform some malicious act.
70. **Malicious code:** Malicious code includes all and any programs (including macros and scripts) which are deliberately coded in order to cause an unexpected (and usually, unwanted) event on a computer system.
71. **M-commerce** (mobile commerce) is the buying and selling of goods and services through wireless technology-i.e. handheld devices such as cellular telephones and personal digital assistants (PDAs). Japan is seen as a global leader in m-commerce.
72. **Micropayment**: A small payment (sometimes taken as under US$ 10, sometimes meaning not more than a few cents) which would be uneconomical to process through traditional payment media.
73. **Navigation:** Generally referred to as the structure and process of moving from one page or section of a web site to another.
74. **Network:** The setup of hardware and software that allows multiple computers to connect and communicate with each other electronically. The Internet is by far and away the largest network in the world.
75. **Non-repudiation:** It ensures that neither the sender nor the receiver of a message is able to deny the transmission.
76. **Online:** A computer or user is online when connected to a network or server that allows communication flow between computers.
77. **Online Advertising:** Advertising on the internet.
78. **Online Publishing:** The electronic delivery of newspapers, magazines, news and other information through internet.

79. **Online Shopping:** It is shopping while online or while on the internet.
80. **Opt-in email:** A process for allowing people to request email from you.
81. **Opt-out email:** A process for allowing people to request that you stop sending email.
82. **Password:** A sequence of characters paired with a user name that assures only the user with that password can log on with the particular user name associated with it.
83. **Payment Gateway:** A combination of software and hardware that provides an interface to the bank card processing network
84. **Phishing:** It is the creation of e-mail messages referencing web pages that are replicas of existing sites to make users believe that these are authentic sites.
85. **Pop in ad:** Advertisements that are pops up or appears in its own window when the user opens or closes web page.
86. **Private Key Encryption:** An encryption system that uses two private keys for encrypting and decrypting messages. Both parties must have a secret key to decrypt a message encrypted by the other. The drawback with this method of encryption is in the difficulty of distributing the private keys.
87. **Protocol:** A set of rules governing trading, eg the types of orders allowed (*market order*, *limit order*, stop-loss, off-market, etc), minimum tick size, rules to halt trading, special rules for openings and closings.
88. **Public-Key Encryption:** An encryption system that uses two keys, a public key for encrypting messages and a private key for decrypting messages, to enable users to verify each other's messages without exchanging secret keys. ecBuilder uses Public Key technology.
89. **Public key infrastructure**: The system of technology, rules and institutions to use *cryptography* to ensure data confidentiality. Elements include certification authorities issuing *digital certificates* and use of different keys for encryption and decryption.
90. **Search engine:** A program that indexes web documents and attempts to match those documents with search words or phrases enter by a user.
91. **Search engine optimization:** The process of building web pages target toward getting higher ranking in search engines.
92. **Security Certificate:** A chunk of information (often stored as a text file) that is used by the SSL protocol to establish a secure connection. A Security Certificate contains

information about which it belongs to, who it was issued by, a unique serial number or other unique identification, valid dates, and an encrypted "fingerprint" that can be used to verify the contents of the certificate. In order for an SSL connection to be created both sides must have a valid Security Certificate (**also called a "Digital ID"**).

93. **Security for electronic transactions (SET):** SET was originally supported by companies such as MasterCard, VISA, Microsoft and Netscape and provides a means for enabling secure transactions between purchaser, merchant (vendor) and bank.
94. **Server:** A computer or software program that provides services such as email and World-Wide Web access to clients on a network.
95. **Service Level Agreement (SLA):** It is used in many merchant/institution and merchant/consumer transactions to define the boundaries of what the service is committed to deliver and under what circumstances.
96. **Shareware:** Software that is distributed at no cost that can be used for free for a specific period of time or under certain circumstances to allow evaluation
97. **Shopping Cart**: Software that keeps track of items a visitor picks to buy from your site until they proceed to the "checkout".
98. **Smart card:** Smart cards look and feel like credit cards, but have one important difference, they have a 'programmable' micro-chip embedded. Their uses are extremely varied but, for information security, they are often used not only to authenticate the holder but also to present the range of functions associated with that user's profile. An integrated circuit card with a microprocessor, capable of performing calculations and producing a *digital signature*.
99. **Sniffers:** A sniffer is a program which captures and analyses packets of data as it passes across a network. Such programs are used by network administrators who wish to analyse loading across network segments, especially where they suspect that spurious packets are 'bleeding' from one network to another.
100. **Soft goods:** Soft goods are products that can be distributed electronically. Examples of soft goods, also known as digital goods, include software, music files, images, books or any other type of data that can be sent electronically from one computer to another.
101. **Spam:** Electronic equivalent of junk mail.

102. **Spiders:** Software used by search engines to locate new Web pages for their document databases.
103. **Spoofing:** Alternative term for identity hacking and masquerading.
104. **Secure Socket Layer (SSL):** It is a protocol that helps to send private information securely over the internet.
105. **SOHO:** It stands for Small Office/Home Office and refers to a specific group of people who work from home or very small companies.
106. **Steganography***:* Steganography is the technique whereby a message, possibly encrypted, is concealed within another medium. In the world of computing, this means that a seemingly innocuous graphic or sound file (say) can conceal a message which could be used to disguise corporate espionage.
107. **SYN attack:** This DoS attack takes places when connection requests to the server are not properly responded to, causing a delay in connection. Although these failed connections will eventually time out, should they occur in volume, they can deny access to other legitimate requests for access.
108. **TCP/IP Transmission Control Protocol/Internet Protocol:** A suite of computer communication protocols that connect networks and allows them to communicate with each other. TCP verifies data transmission between a client and a server. IP moves the data to the appropriate node on a network. TCP/IP is the primary transmission protocol used on the Internet.
109. **Threat:** A threat is anything that can disrupt the operation, functioning, integrity, or availability of a network or system.
110. **Time-bomb:** As the name suggests, a piece of hidden program code designed to run at some time in the future, causing damage to, or loss of, the computer system.
111. **Trojan horse:** A trojan horse is a malicious, security-breaking program that is disguised as something benign, such as a directory lister, archiver, game. A trojan is a type of virus that normally requires a user to perform some action before the payload can be activated.
112. **Tunnelling protocols:** Standards governing methods of transferring encapsulated data through private tunnels over public networks.
113. **Uniform Resource Locator (URL):** A method of identifying a document or resource on the Internet. A web page address.

114. **Virtual bank:** A bank operating through the *internet* with no physical branches (of *Clicks-and-mortar*).
115. **Virtual private netw**ork **(VPN):** A virtual private network emulates a private network over a public network infrastructure, using specialist hardware and software. A private data network that uses public networks but maintains security through *tunnelling protocols* and security procedures such as access control and *encryption*.
116. **Van Eck monitoring***:* Monitoring of the activity of a computer or other electronic equipment by detecting low levels of electromagnetic emissions from the device. It is named after Dr. Wim van Eck who discussed the topic in 1985.
117. **Voice Authorization:** When a merchant makes a telephone call to obtain a credit card authorization rather than using a terminal, or credit card software to obtain the authorization. The merchant must, in addition to the voice authorization, submit the credit card information via telephone, terminal, or software to close out the transaction and transfer the funds to the their bank account.
118. **Vortals (Vertical Industry Portals):** Online resources that are gateways to specific industry related information.
119. **Virus:** A virus is a form of malicious code and as such is potentially disruptive. It may also be transferred unknowingly from one computer to another.
120. **Website:** Collection of web pages
121. **Web browser**: A software application that allows you to view resources (primarily HTML web pages) on the Internet.
122. **Web design**: The creation and coordination of information in a web site.
123. **Web hosting**: A computer that is always connected to the internet and provides access to web resources for a web site.
124. **Web Resource**: Any HTML file, image or other computer file that can be reached through a URL.
125. **White hat/black hat hackers:** White hat hackers are hackers who perform hacking for legitimate reasons, e.g. IT security technicians testing their systems and researchers testing the limits of systems. On the other hand, black hat hackers are those who perform clandestine hacking for malicious reasons; such persons can also be referred to as ‘crackers’. Grey hat hackers are those who seem to fall between both camps.

126. **Wireless Application Protocol (WAP):** It allows web pages formatted in HTML to be displayed on devices with small screens like PDAs and mobile phones.
127. **World Wide Web (www):** It is also known as web. It is the universe of network accessible information. It is a system of interlinked hypertext documents that can be accessed through the internet.
128. **Worm:** A worm is a malicious program that propagates itself over a network, reproducing itself as it goes.
129. **WYSIWYG:** What You See Is What You Get: An application that displays how the resulting page will look as it is being developed by the user in which the screen displays what the end result will look like, while the document is being created or modified.
130. **Xenocurrency** A currency in common use outside its country of issue. Also termed "eurocurrency".

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