E-COMMERCE
Unit – I
Question & Answer

Syllabus

UNIT I: Electronic Commerce Framework –Traditional vs Electronic business application, The Anatomy of E-Commerce Applications.

PART – A QUESTIONS

1. Expand MPEG. (April/May 2016)

Experts MPEG Stands for Moving Picture Experts Group. It an international standard for encoding and compressing video images.

2. Define the term Audio text. (April/May 2016)

A simple voice processing technology that is essentially a voice bulletin board, **audio text** allows callers to select prerecorded messages from a menu. **Audio text** is used to provide information that seldom changes or that must be available to large numbers of callers.

3. Define the goal multimedia. (Nov/Dec 2015)

Our overall goal is to increase multimedia contributions and add more media-rich content.

- Improve the **viewing experience** for multimedia content
- Enable **multimedia contributions** in a more seamless way
- Provide **file feedback and curation tools** to manage contribution streams
- Upgrade our **software architecture** and repay our 'technical debt' from prior years

4. **What is meant by message passing? (Nov/Dec 2015)**

Message passing is a form of communication used in parallel programming and object-oriented programming. Communications are completed by the sending of **messages** (functions, signals and data packets) to recipients.

5. **List down the broad goals of reengineering and e-commerce. (Nov 2014)**

Business process reengineering (BPR) involves the examination and redesign of business processes and workflows in your organization. A **business process** is a set of related work activities that are performed by employees to achieve business goals. Basically, a **business process** is the way we perform our work and **business process reengineering** is the process of changing the way we do our work so we do it better to accomplish the goals of our business.

- Online shopping web sites for retail sales direct to consumers
- Providing or participating in online marketplaces, which process third-party business-to-consumer or consumer-to-consumer sales
- Business-to-business buying and selling

6. **List down components of electronic books. (APR/MAY 2015)**
   - ✓ Trendy topic
   - ✓ Research
   - ✓ Outline
   - ✓ Design
   - ✓ Table contents
   - ✓ E-book length

7. **Expand the term JIT (APR/MAY 2015)**

Just-In-Time

- ✓ Using JIT **calculates** how many parts are needed each day based on the **production schedule & electronically transmit orders**.
- ✓ Delivery has to be responsive, or it will cost too much in **money & time.**
- ✓ Getting data to suppliers **quickly**.

8. List down the possible components of Multimedia(APR/MAY 2014)

- ✓ Multimedia consists of **Text, Image, Audio, Video, Animation, Hologram, Numerical data, Graphics.**
- ✓ Videophone, Personal Computer, Personal Digital Assistance, Cellular Phones, Mobile and Portable Computers.

9. Define E-commerce(APR/MAY 2014,NOV/DEC 2013,NOV 2012,2011)

Electronic Commerce is the business environment in which information for the **buying, selling and transportation of goods and services** moves electronically.

10. Expand the term EDI (NOV 2014)

Electronic Data Interchange (EDI)

- ✓ It provides a standardized system.
- ✓ **Coding trade transactions**.
- ✓ **Communicated from one computer to another** without the need for printed orders and invoices & delays & errors in paper handling.

11. What is messaging software?(APR/MAY 2013)

Messaging **software fulfills** the role, in any no. of forms: **e-mail, EDI**, or point-to - point filetransfers.

12. What is SCM? (NOV/DEC 2013)

Supply chain management (SCM) is the management of the **flow of goods**. It includes the movement and **storage of raw materials**, work-in-process inventory, and finished goods from point of origin to point of consumption.

13. Define convergence (Nov 2012).

Convergence defined as the melding of consumer **electronics, television, publishing, telecommunications,** and computers for the purpose of facilitating new forms of information-based commerce.

14. Name any two pillars supporting e-com. (APR 2011).

- ✓ **Public policy,** to govern such issues as **universal access, privacy,** and information pricing.
- ✓ **Technical standards,** to dictate the **nature of information publishing, user interfaces** and transport in the interest of compatibility across the entire network.

15. Give any two e-com applications(NOV/DEC 2011)

- ✓ **Multimedia Content for E-Commerce Application: Text, audio, video, images, graphics, numerical data, holograms**, and animations in a computer file/document.
- ✓ **Multimedia Storage Servers & E-Commerce Applications:** These Multimedia storage servers are large information warehouses capable of handling various **content, ranging from books, newspapers, advertisement catalogs, movies, games, & X-ray images.**

16. What is mean by E-business?

E-business is the conducting of **business on the internet**, not only buying and selling, but also serving customers and **collaborating with business partners**.

17. List the benefits of E-Commerce.

- ✓ Reduced costs
- ✓ Reduced time
- ✓ Flexibility with efficiency
- ✓ Improve relationships
- ✓ Lock in customers.

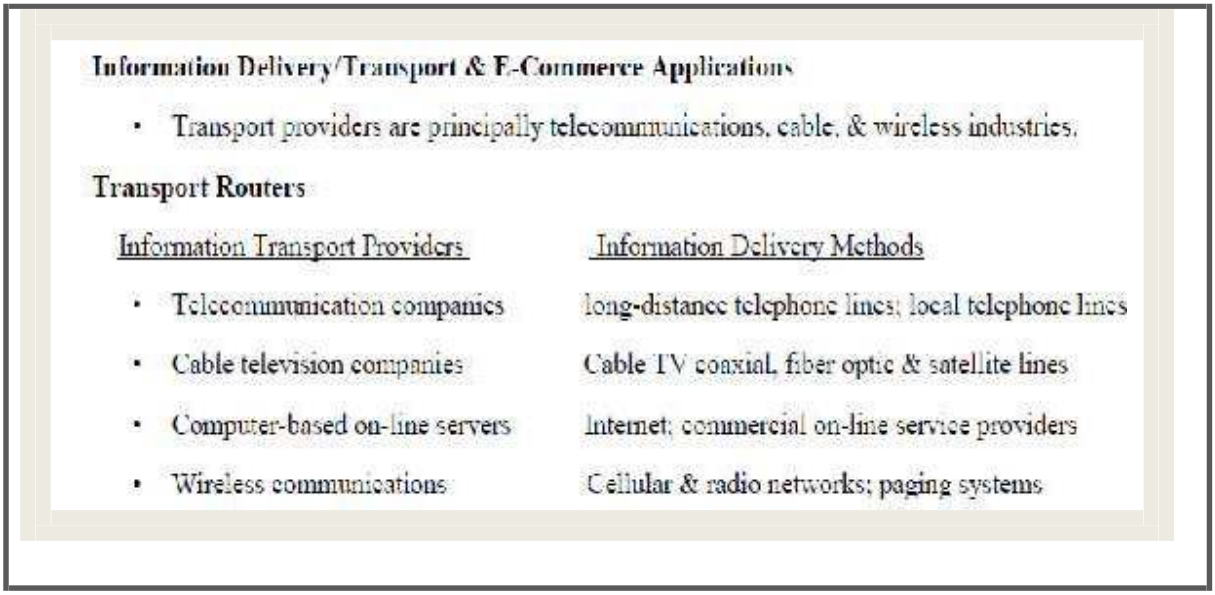
PART – B QUESTIONS

1. **Give an account on consumer access devices.(APR/MAY 2015, NOV/DEC 2013).**

Consumer Access Devices.

Information Consumers	Access Devices
• Computers with audio & video Mobile computing	• Personal/desktop computing capabilities
• Telephonic devices	• Videophone
• Consumer electronics	• Television + set-top box Game systems
• Personal digital assistants (PDAs) computing, Software agents.	• Pen-based computing, voice-driven

2. **Discuss the information delivery/transport and e-Commerce applications (APR/MAY 2014).**



3. **Give the introduction to e-commerce(NOV 2014)**

- ✓ It is a general concept covering **any form of business transaction** or information exchange executed using information and communication technologies (ICT's)
- ✓ It includes **electronic trading of goods, services and electronic material**.
- ✓ It takes place between companies, between companies and their customers, or between companies and public administrations.

They can be classified by application type:

1. Electronic Markets

- ✓ Present a range of offerings available in a market segment so that **the purchaser can compare the prices** of the offerings and **make a purchase decision**.
  Example: **Airline Booking System**

2. Electronic Data Interchange (EDI)

- ✓ It provides a standardized system.
- ✓ **Coding trade transactions.**
- ✓ Communicated from **one computer to another** without the need for printed orders and invoices & delays & errors in paper handling.
- ✓ It is used by organizations that a make a **large no. of regular transactions.**

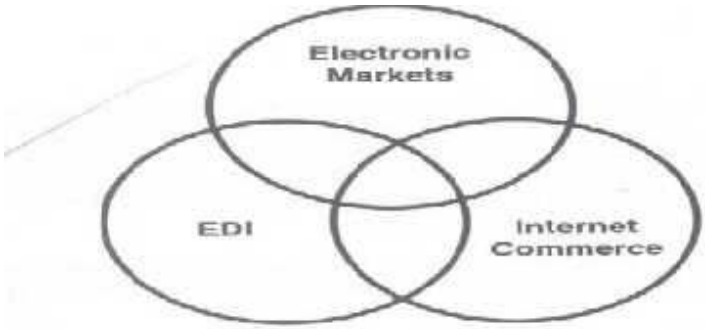
Example: EDI is used in the large market chains for transactions with their suppliers.

3. Internet Commerce

- ✓ It is use to **advertise & make sales of wide range of goods & services**.
- ✓ This application is for both business to business & business to consumer transactions.

Example: The purchase of goods that are then delivered by post or the booking of tickets

that can be picked up by the clients



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4. Explain briefly about video server architecture (APR/MAY 2014, 2013).

The electronic commerce applications related to digital video will include

- ❖ Telecommunicating and video conferencing
- ❖ Geographical information systems that require storage & navigation over maps
- ❖ Corporate multimedia servers
- ❖ Postproduction studios
- ❖ Shopping kiosks.
  - ✓ Consumer applications will include **video-on-demand.**
  - ✓ The figure which is of video–on demand consist video servers, is a link between the **content providers (media) & transport providers (cable operators).**

5. Explain briefly about client server architecture. (APR/MAY2013, NOV 2014, 2012).

- ✓ **All e-commerce applications** follow the **client-server model**
- ✓ Clients are devices plus software that **request information from servers** or interact known as message passing Mainframe computing, which meant for "**dump**".
- ✓ The client server model, allows client to interact with server through **request-reply sequence** governed by a paradigm known as message passing.
- ✓ The server manages application **tasks, storage & security & provides scalability**-ability to add more clients and client devices (like Personal digital assistants to Pc's. See in fig.

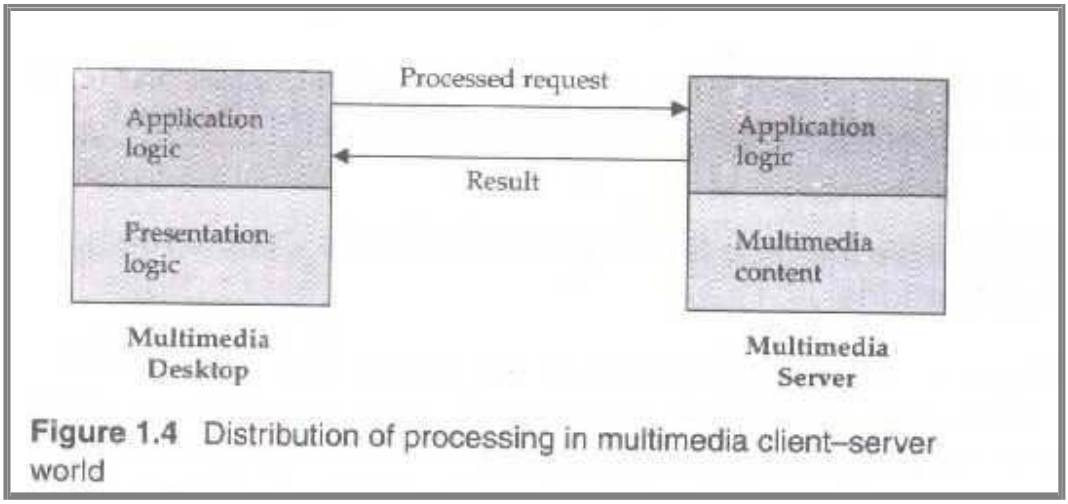


Figure 1.4 Distribution of processing in multimedia client–server world

6. **What are the components of multimedia? (NOV 2012).**

Capture devices

- ✓ **Video Camera, Video Recorder**, Audio Microphone, Keyboards, mice, graphics tablets, 3D input devices, tactile sensors, VR devices, Digitizing / Sampling Hardware.

Storage Devices

- ✓ Hard disks, **CD-ROMs, Jaz/Zip drives, DVD**, ***etc***

Communication Networks

- ✓ Ethernet, Token Ring, FDDI, **ATM,** Intranets, Internets.

Computer Systems

- ✓ Multimedia Desktop machines, **Workstations,** MPEG/VIDEO/DSP Hardware.

Display Devices

- ✓ CD-quality speakers, HDTV, SVGA, Hi-Res monitors Color printers ***etc.***

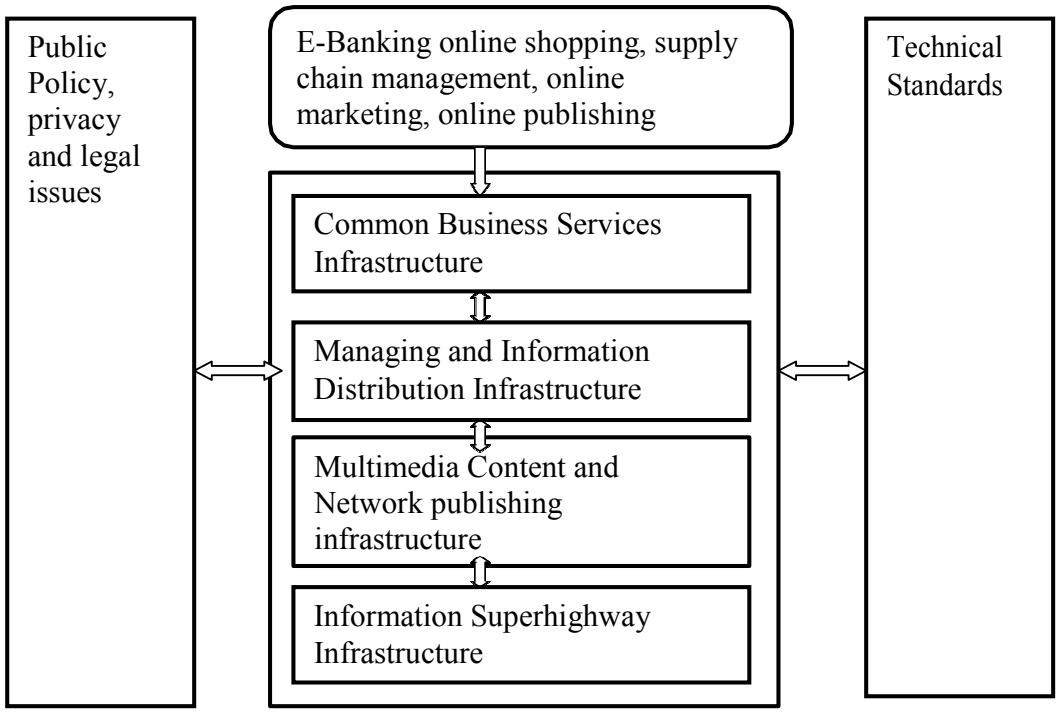
7. **Explain the term 'media convergence' (APR 2011).**

- ✓ Many companies are pooling their resources and talents and talents through alliances and mergers with other companies to make the **electronic marketplace a reality**.

- ✓ Convergence defined as the melding **of consumer electronics, television, publishing, telecommunications,** and computers for the purpose of facilitating new forms of information-based commerce.
- ✓ **Multimedia convergence** applies to the conversion of **text, voice, data, image, graphics, and full motion video into digital conten**t.
- ✓ Cross-media convergence refers to the integration of various industries – **entertainment, publication, and communication media** based on multimedia content.
- ✓ In short, convergence **requires removing the barriers** between the telecommunications, broadcasting, computing, movie, electronic games and publishing industries to facilitate interoperability.
- ✓ Driving the phenomenon of convergence are some **simple technological advances**.
- ✓ Convergence of content **translates all types of information** content-books, business documents, videos, movies, music into digital information.
- ✓ Convergence of transmission **compresses and stores digitized information** so it can travel through existing phone and cable wiring.
- ✓ Convergence of information access devices have the sophistication to function as both **computers and televisions.**

8. Explain the Frame work of e-commerce.

E-commerce mainly involves B2B and B2C E-Banking online shopping, supply chain management, online marketing, online publishing etc.



Some of the building blocks in the infrastructure are as follows;

- **Common business services infrastructure**
  - ✓ It enables **buying and selling of goods** in electronic environment.
  - ✓ It includes **electronic catalog , electronic payment, encryption** ,and other e- securities involved in atransaction.
- **Managing and information distribution infrastructure**
  - ✓ This infrastructure helps in **sending and retrieving information**.
  - ✓ It supports a **variety of software like e-mail, fax, EDI.**
- **Multimedia content and network publishing infrastructure**
  - ✓ It helps in determining the appropriate means of communication among the various parts and **verification for delivery information**.
  - ✓ Multimedia content includes a combination of **text, graphics, video, audio etc.**

- **Information superhighway infrastructure**
  - ✓ It helps in **transporting information and digital goods** from one point to another.
  - ✓ It facilitates e-commerce **application, computer, internet, telephone, cable and satellite communication**.

The two pillars that support e-commerce application in information superhighway

- **Public policy, privacy and legal issues**
  - ✓ They govern rules like **universal access and privacy**.
  - ✓ Such issues support **encryption** and encryption mechanism for safe transfer of information.
  - ✓ It protects the **consumer from fraud**.
- **Technical standards**
  - ✓ Technical standard are very important .they provide any type of devices like **PC ,laser disc, portable computer devices**, etc

PART – C QUESTIONS

1. **List and explain the functions of supply chain management.(NOV 2014, APR/MAY 2015)**

Supply Chain Management (SCM) is also called "extending", which means integrating the internal and external partners on the supply and process chains to get raw materials to the manufacturer and finished products to the consumer

It includes following functions

- **Supplier management:** The goal is to reduce the number of suppliers and get them to partners
- **Inventory management:** The goal is to shorten the order-ship-bill cycle. When a majority of partners are electronically linked, information faxed or mailed
- **Distribution management:** The goal is to move documents (accurate data) related to shipping

- **Channel management:** The goal is to quickly disseminate information about changing operational conditions (technical, product, and pricing information) to trading partners
- **Payment management:** The goal is to link company and the suppliers and distributors so that payments can be sent and received electronically
- **Financial management:** The goal is to enable global companies to manage their money in various foreign exchange accounts
- **Sales force productivity:** The goal is to improve the communication flow of information among the sales, customer & production functions

Work group Collaboration Applications:

1. A internetwork that enables easy and inexpensive connection of various organizational segments
2. It is to improve communications and information sharing and to gather and analyze competitive data in real-time
3. Videoconferencing, document sharing and multimedia e-mail, are expected to reduce travel and encourage telecommuting

2. What are the challenges faced by highway route provider?(APR/MAY 2013)

Challenge#1: Lack of Verification Measures

Once a customer signs up in an e-commerce portal, the portal is unaware about the customer except the information he/she entered. The credibility of the customer is questionable. This heightens when the customer issues a Cash-on-Delivery (COD) purchase because the business is unsure whether the customer is genuine or not. These have resulted in huge revenue losses for many e-commerce players.

Solution: This challenge can be brought under control by sending out a textual or/and email message to the customer to validate his/her identity. And when a COD purchase is issued, an automated call or Interactive Voice Response (IVR) can be dialed out to the

customer and ask him/her to validate the delivery address. This would not send out the wrong message to the customers that they are being doubted, and it would fulfill your purpose as well.

Challenge#2: Product Returns and Refunds

When products are returned because customers are unsatisfied with the product, it scars the business with heavy loss on shipment and reputation. Costs of logistics have always been an issue for e-commerce players especially for those who deliver for free.

Solution: This cost of operation can be minimized with proper returns management with seamless interaction platform with logistic partners and vendors.

Challenge#3: Lack of Integration

Order management system, customer support system, dispatch system, order tracking system, etc is applications that can streamline the experience of the customer across the buying journey. But if these systems are disparate it could ruin customer experience.

Solution: A contact center technology could integrate these multiple disparate systems seamlessly, synchronizing available information across all systems and displaying it in a singleinterface.

Challenge#4: Customer Issues Going Unnoticed

Being in an industry where customers can take their business elsewhere in a blink of an eye, customer service goes a long way. E-commerce business receives a lot of inbound interaction with more than 75% being complaints or concerns. When these concerns go unnoticed, it compromises the standard of quality of your business, and tarnishes your image.

Solution: With proper ticketing solutions and easy to use interfaces, employees are able to cater to every customer ticket generated at any channel. The efficiency raises with prioritization measures assigning level of importance to each ticket, making sure high

priority tickets are handled before anything else.

Challenge#5: Customer Loyalty

E-commerce industry is an industry where the cost of switching is pretty insignificant. A lot of players have lost customers because their rivals have a better quality of customer service, or better discounts. Knowing that 86% of clients stop doing business with a company because of poor customer service, you need to ensure customer service is always a priority for your online business and part of your retention strategy. Customers demand consistent and seamless experience across all channels, and players that refuse to deliver fail to retain customers. **Solution**: Customer Interaction Management technology makes sure every customer is under the radar. With effective customer nurturing technology tools and multimedia integration improves customer retention scores and are more likely to transform one-time purchasers to brand advocates.

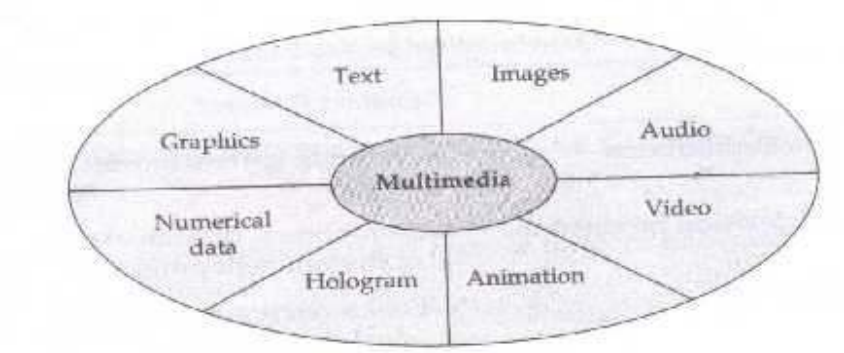
E-commerce is advancing at a scorching pace, and a lot of e-commerce websites enter the business daily with a survival rate of less than 10% after the first year. This industry is brutal and demands businesses to arm themselves with state-of-the-art solution to differentiate themselves from the crowd.

3. **Discuss in detail about multimedia content for e-commerce application. (APR/MAY 2015 , APR/MAY 2016, NOV/DEC 2015)**

   Multimedia Content for E-Commerce Applications

   - ✓ Multimedia content can be considered both **fuel and traffic** for electronic commerce applications.
   - ✓ The technical definition of multimedia is the use of **digital data** in more than one format, such as the combination of text, audio, video, images, graphics, numerical data, holograms, and animations in a computer file/document.

- ✓ Multimedia is associated with **Hardware** components in different **networks**.
- ✓ The Accessing of multimedia content depends on the **hardware capabilities of the customer.**



Multimedia Storage Servers & E-Commerce Applications:

- ✓ E-Commerce requires **robust servers to store** and distribute large amounts of digital content to consumers.
- ✓ These Multimedia storage servers are **large information warehouses** capable of handling various content, ranging from books, newspapers, advertisement catalogs, movies, games, & X-ray images.
- ✓ These servers, deriving their name because they serve information upon request, must handle large-scale distribution, **guarantee security, & complete reliability.**

Client-Server Architecture in Electronic Commerce

- ✓ All e-commerce applications follow the **client-server model** .
- ✓ Clients are devices plus software that request information from **servers or interact** known as **message passing** .
- ✓ **Mainframe** computing , which meant for "dump"
- ✓ The client server model, allows client to interact with server through **request-reply sequence** governed by a paradigm known as message passing.
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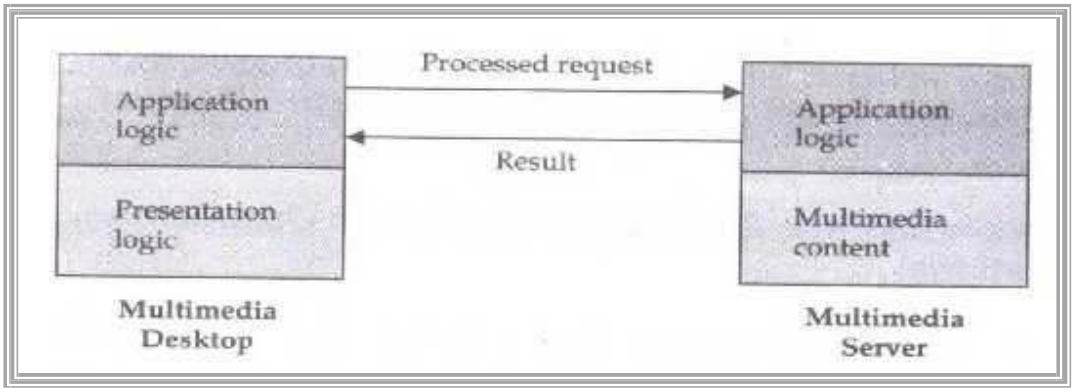


Internal Processes of Multimedia Servers

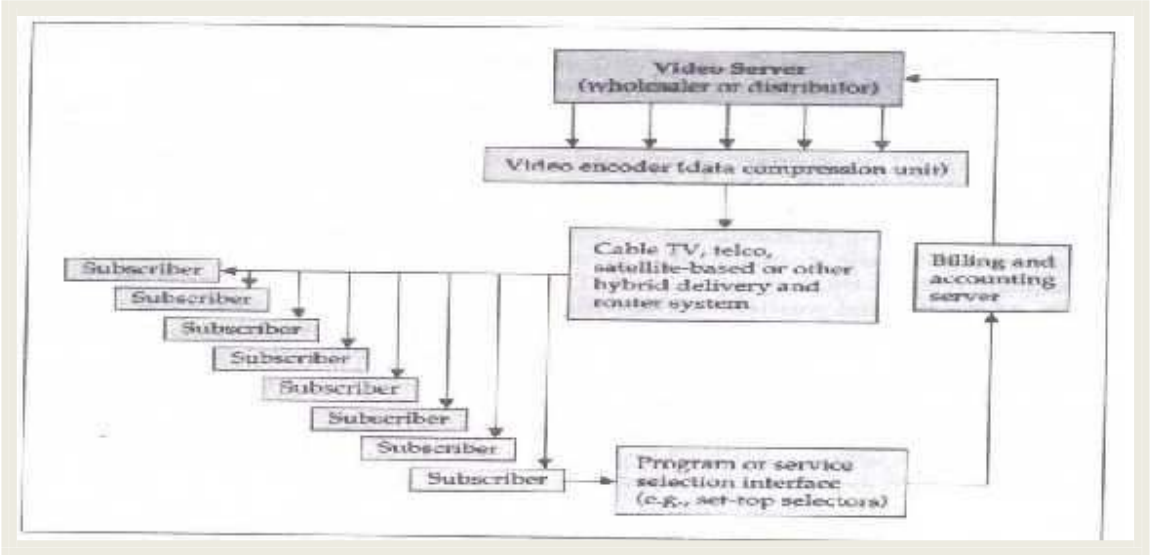
- ✓ The internal processes involved in the **storage, retrieval & management** of multimedia data objects are integral to e-commerce applications.
- ✓ A multimedia **server is a hardware & software** combination that converts raw data into usable information & then dishes out.
- ✓ It **captures, processes, manages, & delivers text, images, audio & video**.
- ✓ It must do to handle **thousands of simultaneous users**.
- ✓ Include high-end **symmetric multiprocessors, clustered architecture, and massive parallel systems.**

Video Servers & E-Commerce

The electronic commerce applications related to digital video will include

1. Telecommunicating and video conferencing
2. Geographical information systems that require storage & navigation over maps
3. Corporate multimedia servers
4. Postproduction studios
5. Shopping kiosks.

- Consumer applications will include video-on-demand.
- The figure which is of video–on demand consist vide o servers, is an link between the content providers (media) & transport providers (cable operators)



Information Delivery/Transport & E-Commerce Applications

✓ Transport providers are principally telecommunications, cable, & wireless industries.

Transport Routers		
Information Transport Providers		Information Delivery Methods
1	Telecommunication companies	long-distance telephone lines; local telephone lines
2	Cable television companies	Cable TV coaxial, fiber optic & satellite lines
3	Computer-based on-line servers	Internet; commercial on-line service providers
4	Wireless communications	Cellular & radio networks; paging systems

4. Explain about Anatomy of e-com in detail.(NOV/DEC 2011)

The anatomy of e-commerce applications lays emphasis on various parts of e-business infrastructure.

- Multimedia content
- Multimedia servers
- Client-server architecture
- Network service providers
- Information delivery infrastructure
- Video severs

- Consumer devices

Multimedia content

- ✓ The technical definition of multimedia is the use of digital data in more than one format, such as the **combination of text, audio, video, images, graphics, numerical data, holograms, and animations in a computer file/document.**
- ✓ Multimedia content can be considered **both fuel and traffic** for electronic commerce applications.

Multimedia servers

- ✓ E-Commerce requires robust servers **to store and distribute large amounts of digital** content to consumers.
- ✓ These Multimedia storage servers are large information warehouses capable of handling various content, **ranging from books, newspapers, advertisement catalogs, movies, games, & X-ray images.**

Client-server architecture

- ✓ Clients are devices plus software that request information from **servers or interact known as message passing**
- ✓ The client server model, allows client to interact with server through **request-reply sequence** governed by a paradigm known as message passing.

Network service providers

- ✓ NSP act as access point is business organization.
- ✓ These organizations sell **bandwidth** or network access by providing direct backbone access to the **internet** and usually access to its NSP.

Information delivery infrastructure

- ✓ Information delivery infrastructure helps in **distribution of information**. The transport provides play an important role in transportation of information.
- ✓ The transport provides consist of **telecommunications, cable, wireless industries**. commercial networks and public network such as internet

Video Servers

- ✓ Video servers act as an important link between the **content providers and the transport providers.**

- ✓ **Entertainment producers, media industries** are some content provides.
- ✓ **Cartoons, games, movies and video** are some of the content produced by entertainment producers.

Consumer Devices

- ✓ The consumer devices that provide access to information are **videophones, telephones, personal computers, laptop, desktop computers, television sets .**

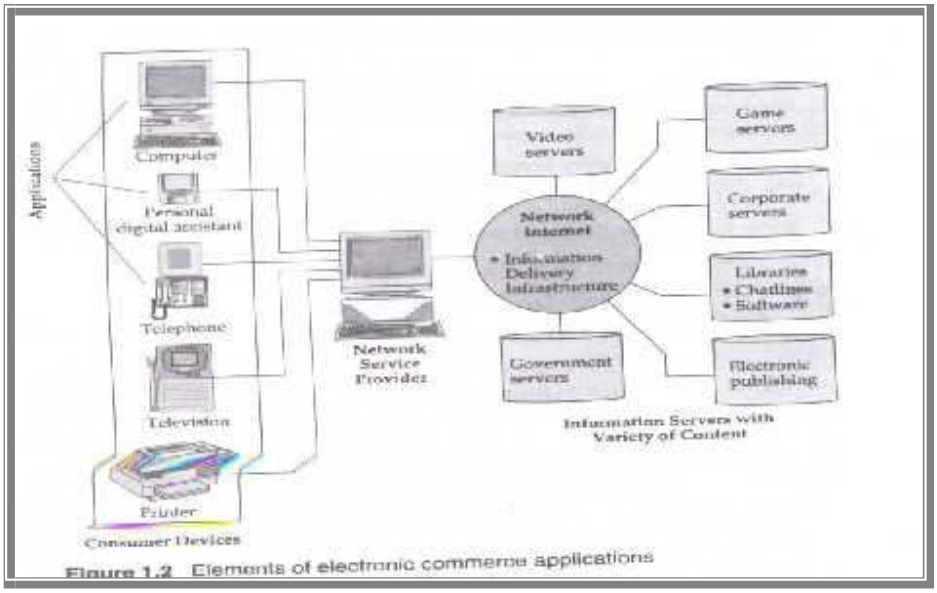


Figure 1.2 Elements of electronic commerce applications

5. Explain in detail about consumer applications in E-Commerce.(NOV 2012).

The wide range of applications envisioned for the consumer marketplace can be broadly classified into:

(i) Entertainment

(ii) Financial Services and Information

(iii) Essential Services

(iv) Education and Training.

- ✓ Consumer Life-Style Needs Complementary Multimedia Services Entertainment Movies on demand, video cataloging, interactive Ads, Multi-user games, on-line discussions.
- ✓ Financial Services and **Home Banking, Financial services, Information, Financial news.**

- ✓ Essential Services **Home Shopping, Electronic Catalogs, telemedicine**, remote diagnostics.
- ✓ **Education and Training Interactive education, multiuser games, video conferencing, on-line databases.**

1. Personal Finance and Home Banking Management

(i) Basic Services

(ii) Intermediate Services

(iii) Advanced services

2. Home Shopping

i) Television-Based Shopping

(ii) Catalog-Based Shopping

3. Home Entertainment

(i) Size of the Home Entertainment Market

(ii) Impact of the Home Entertainment on Traditional Industries

4. Micro transactions of Information

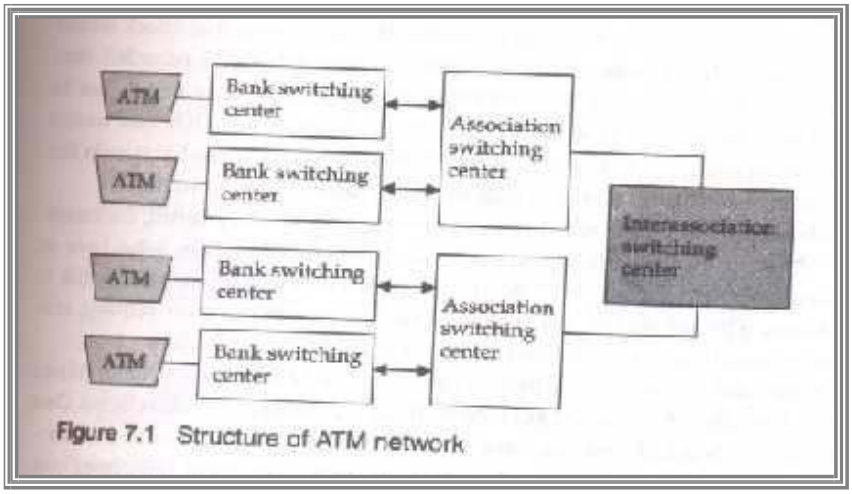
1. <u>Personal Finance and Home Banking Management:</u>

- ✓ The newest technologies are **direct deposit of payroll, on-line bill payment** and telephone transfers.
- ✓ The technology for **paying bills**, whether by **computer or telephone**, is infinitely more sophisticated than anything on the market a few years ago.
- ✓ For home banking, greater demands on consumers and expanding need for information, it's services are often categorized as **basic, intermediate and advanced.**

(i) Basic services

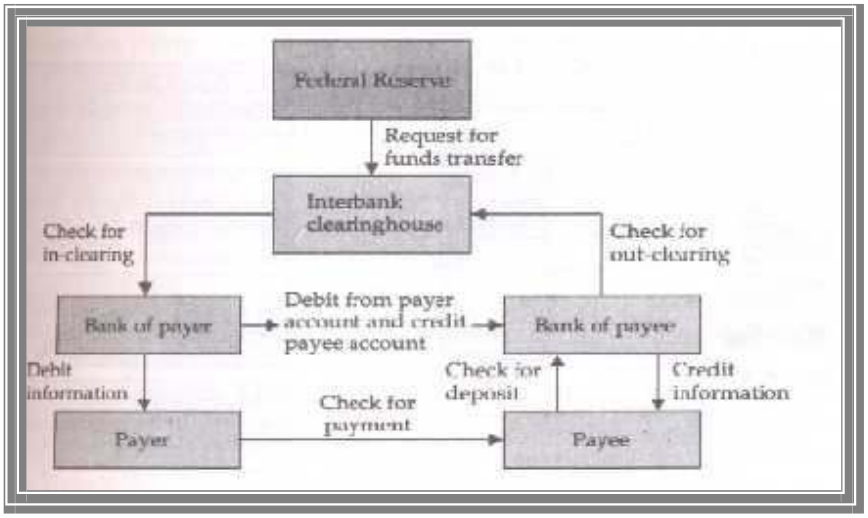
- ✓ These are related to personal finance .
- ✓ The evolution of **ATM machines** from live tellers and now to **home banking**.
- ✓ The ATM network has with banks and their associations being the routers and the ATM machines being the heterogeneous computers on the network.
- ✓ This interoperable network of ATMs has created an interface between customer and bank that **changed the competitive dynamics of the industry**.

- ✓ **Increased ATM usage** and decrease in teller transactions.
- ✓ The future of home banking lies with PC's



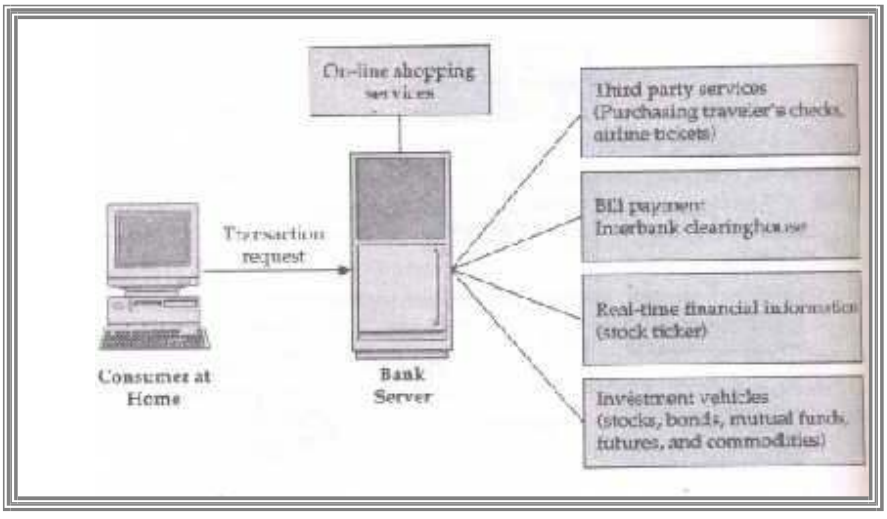
(ii) Intermediate Services

- ✓ The problem with home banking in 1980 is, it is expensive service that requires a PC, a modem and special software.
- ✓ As the equipment becomes less expensive and as bank offers **broader services, home banking develop** into a comprehensive package that could even include as insurance entertainment.
- ✓ Consider the computerized **on-line bill-payment system**.
- ✓ It never forgets to record a payment and keeps track of **user account number, name, amount and the date** and we used to instruct with payment instructions.



(iii)Advanced Services

- ✓ The goal of advanced series is to offer their on-line customers a **complete portfolio of life, home, and auto insurance along with mutual funds, pension plans, home financing**, and other financial products.
- ✓ The Figure explains the range of services that may well be offered by banks in future.
- ✓ The services range from on-line shopping **to real-time financial information** from anywhere in the world.
- ✓ In short, home banking allows consumers to avoid long lines and gives **flexibility.**



2. <u>Home Shopping:</u>

- ✓ It is already in wide use.
- ✓ This enable a customer to do online shopping

(i) Television-Based Shopping:

- ✓ It is launched in 1977 by the Home Shopping Network (HSN).
- ✓ It provides a variety of goods ranging from collectibles, clothing, small **electronics, house wares, jewelry, and computers**.
- ✓ It works as, the customer uses her **remote control** at shop different channels with **touch of button**. At this time, cable shopping channels are not truly interactive.

(ii) Catalog-Based Shopping

- ✓ In this the customer identifies the various catalogs that fit certain parameters such as **safety, price, and quality**.
- ✓ The on-line catalog business consists of **brochures , CD-ROM catalogs, and on-line interactive catalogs.**
- ✓ Currently, we are using the electronic brochures.

3. <u>Home Entertainment:</u>

- ✓ It is another application for e-commerce
- ✓ Customer can watch **movie, play games, on-screen catalogs**, such as TV guide.
- ✓ In Home entertainment area, customer is the control over programming
- ✓ In Table tells the, What will be required in terms of Television-based technology for this telemart to become a reality.

The Telemart: Present and Future Functions

- ✓ Compressing and decoding The transition to **digital satellite** a digital signal(images are and **cable network** head broad compress to reduce quantity casting involves linking the TV of information) to **decoder to reconvert** into an analog signal.
- ✓ **Decoding a scrambled** The broad casting of pay channel signal requires the encryption of the **signal on emission & unscrambled**.
- ✓ **Rapid loading** of program An increase in the no. of individual on memory **interactive services** is possible only if n/w overloading is kept minimum.

- ✓ **Electronic money** or Once separated from the **telephone, card** payment terminal telemart will need a keyboard up to the TV set in order to ensure interactivity. The keyboard will have a payment connection to simplify the billing process.

6. Explain the various e-commerce applications(APR 2011)

The applications of E-commerce are used in various business areas such as retail and wholesale and manufacturing. The most common E-commerce applications are as follows:

Retail and wholesale:

- ✓ E-commerce has a number of applications in retail and wholesale. E-retailing or **on-line retailing is the selling of goods** from Business-to-Consumer through electronic stores that are designed using the **electronic catalog and shopping cart model.**
- ✓ Cybermall is a single Website that offers different products and services at one **Internet location**. It **attracts the customer** and the seller into one virtual space through a Web browser.

Marketing:

- ✓ Data collection about **customer behavior, preferences, needs** and buying patterns is possible through Web and E-commerce.
- ✓ This helps marketing activities such as **price fixation, negotiation, product** feature enhancement and relationship with the customer.

Finance:

- ✓ Financial companies are using E-commerce to a **large extent**. Customers can check the balances of their **savings and loan accounts, transfer money** to their other account and **pay their bill through on-line banking** or E-banking.
- ✓ Another application of E-commerce is **on-line stock trading**. Many websites provide access to **news, charts, information** about company profile and analyst rating on the stocks.

Manufacturing:

- ✓ E-commerce is also used in the supply chain operations of a company. Some companies form an **electronic exchange** by providing together **buy and sell goods**, **trade market information** and run back office information such as inventory control.
- ✓ This speeds up the **flow of raw material and finished goods** among the members of the business community. Various issues related to the strategic and competitive issues limit the implementation of the business models.
- ✓ Companies may not trust their competitors and may fear that they will lose trade secrets if they participate in **mass electronic exchanges**.

Auctions:

- ✓ **Customer-to-Customer** E-commerceis direct selling of goods and services among customers.
- ✓ It also includes electronic auctions that involve bidding. Bidding is a special type of auction that **allows prospective buyers to bid for an item**.
- ✓ For example, **airline companies** give the customer an opportunity to quote the price for a seat on a specific route on the specified date and time.

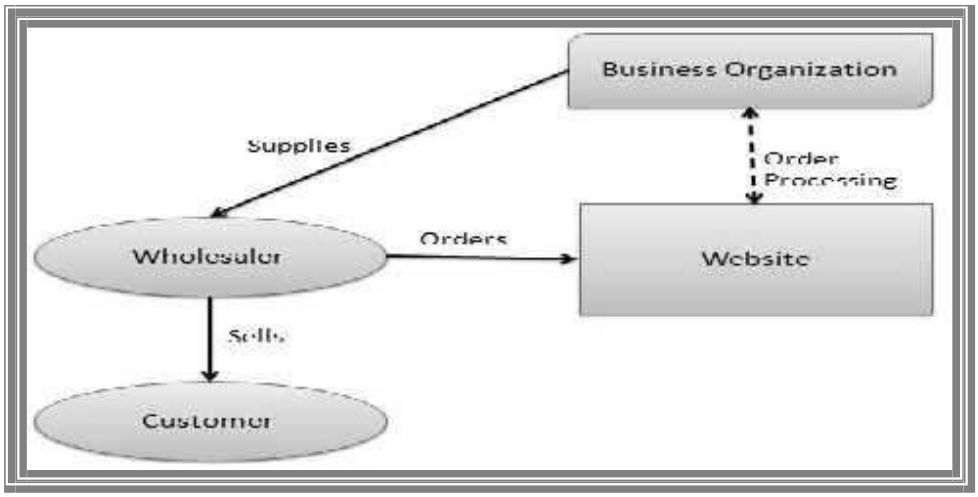
7. Explain detail in classification of e-commerce or e-commerce models

E-commerce business models can generally be categorized into the following categories.

- ➢ 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 - Consumer(G2C)

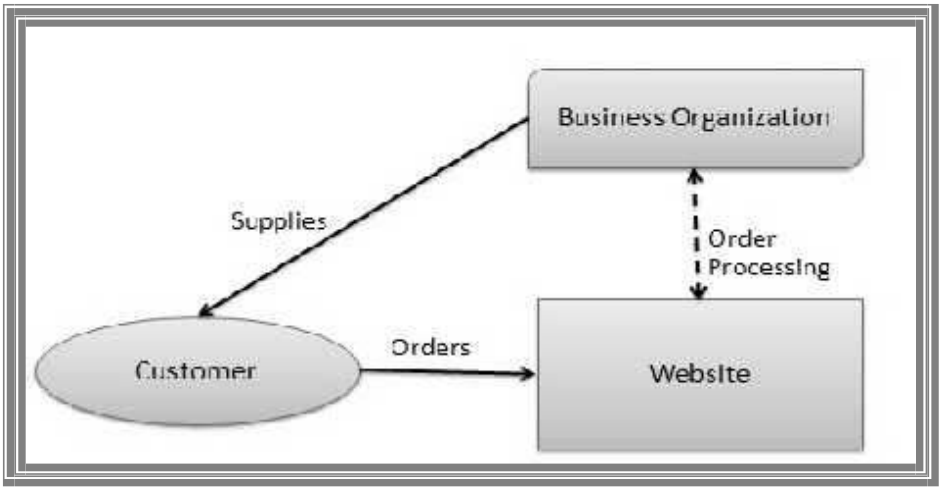
Business - to - Business (B2B)

- ✓ A website following the B2B business model sells its products to an **intermediate buyer who then sells the product to the final customer**.
- ✓ As an example, **a wholesaler places** an order from a company's website and after receiving the consignment, sells the end-product to the final customer who comes to buy the product at one of its retail outlets.



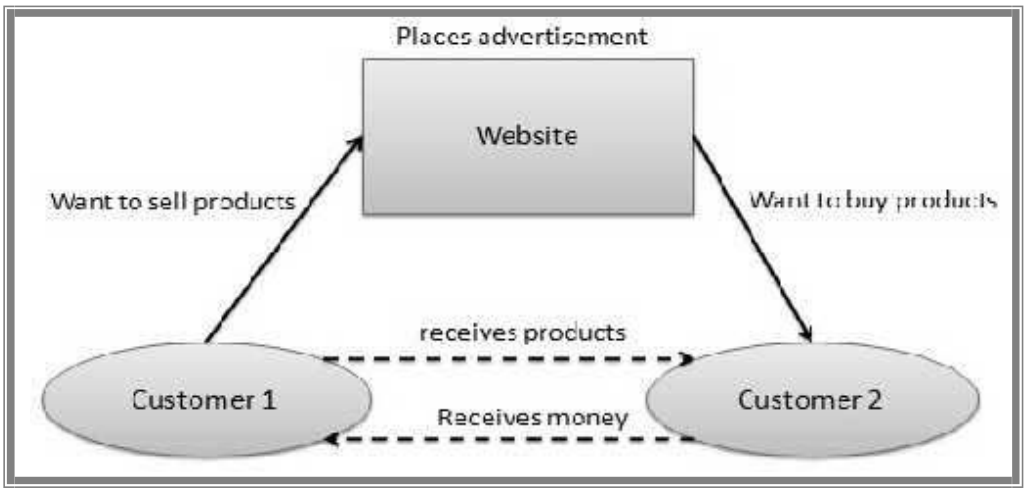
Business - to - Consumer (B2C)

- ✓ A website following the B2C business model sells its **products directly to a customer.**
- ✓ A customer can view the products shown on the **website**. The customer can choose a product and order the same.
- ✓ The website will then send a notification to the business organization via email and the organization will dispatch the product/goods to the customer.



Consumer - to - Consumer (C2C)

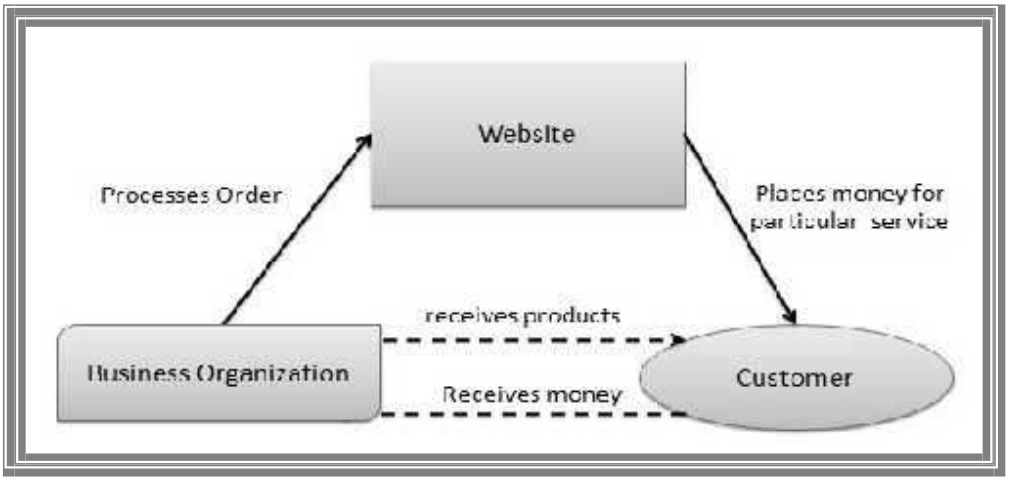
- ✓ A website following the C2C business model helps consumers to sell their assets like **residential property, cars, motorcycles**, etc., or rent a room by publishing their information on the website.
- ✓ Website may or may not charge the consumer for its services. Another consumer may opt to buy the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



Consumer - to - Business (C2B)

- ✓ In this model, a consumer approaches a website showing multiple business organizations for a particular service.

- ✓ The consumer places an estimate of amount he/she wants to spend for a particular service.
- ✓ For example, the comparison of **interest rates of personal loan/car loan provided by various banks via websites.** A business organization who fulfills the consumer's requirement within the **specified budget**, approaches the customer and provides its services.



Business - to - Government (B2G)

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

Government - to - Business (G2B)

- ✓ Governments use B2G model websites to approach business organizations.
- ✓ Such websites support **auctions, tenders, and application** submission functionalities.

Government - to – Consumer (G2C)

- ✓ Governments use G2C model websites to approach citizen in general. Such websites support auctions of **vehicles, machinery, or any other material**.
- ✓ Such website also provides services like registration for birth, marriage or death certificates.
- ✓ The main objective of G2C websites is to reduce the average time for fulfilling citizen's requests for various government services

8. Differentiate traditional commerce vs. electronic commerce.

Key Elements	Traditional Commerce	E-Commerce
Value Creation	**Product/Services**	**Information**
Strategy	**Classical**	**Sense and respond simple rule**
Competitive edge	**Quality/Cost**	**Speed**
Resource focus	**Supply side**	**Demand side**
Customer interface	**Face-to-face**	**Screen-to-face**
Communication	**Personal**	**Technology-mediated channels**

Accessibility	**Limited**	**24x7**
Customer interaction	**Seller influenced**	**Self-service**
Promotion	**Merchandising**	**Word of mouth**

E-COMMERCE
Unit – II
Question Bank

Syllabus:

UNIT II: The Network Infrastructure for Electronic Commerce - The Internet as a Network Infrastructure - The Business of Internet Commercialization.

PART – A QUESTIONS

1. **What is meant by EUNET? (APR/MAY 2016)**

   The roots of **EUnet** (originally an abbreviation for European UNIX Network) go back to 1982 and the first international UUCP connections. From a very loose collaboration of individual sites under the auspices of the EUUG (European UNIX Users Group) (later EurOpen), it evolved to the fully commercial entity EUnet International Ltd.

2. **Specify the services provide by internet for user needs. (NOV/DEC 2015)**

   People though that Internet provided only the "World Wide Web" service. Actually, the Internet provides a lot of services. Few of them are described below.

   World Wide Web (WWW)
   E-Mail
   Telnet
   File Transfer Protocol (FTP)
   Gopher
   Chat Groups

3. **List out the types of services provided by interspin (NOV/DEC 2015)**

   - Tailgate Service
   - Heated Service
   - Appointment Delivery Service
   - Same Day Service
   - Dedicated Service / Fleet Service

4. **State the four division through which CompuServe operates (APR/MAY 2015)**
   - ✓ Information services
   - ✓ Network services

- ✓ Support services
- ✓ Software services

5. **Write the acronym for TCP/IP. (APR/MAY 2015)**
   - ✓ Transmission Control Protocol/Internet Protocol
   - ✓ Its provides a connection oriented, reliable, byte stream service.
6. **State the major components of I-way(APR/MAY 2014,2011)**
   - ✓ Network Access Equipment
   - ✓ Local-on-Ramps
   - ✓ Global Information Distribution Networks
7. **Expand the term MAN and WAN(APR/MAY 2014)**

   MAN: Metropolitan Area Network
   - ✓ The term metropolitan refers to a city.
   - ✓ This network covers a large geographic area limited within a city or a town.

   WAN: Wide Area Network
   - ✓ It covers the maximum geographic area spread over cities, states or even countries.
8. **Write the acronym for ARPA. (NOV 2014)**
   - ✓ The Internet originated in the late 1960s when the United States Defense Department developed ARPAnet **(Advanced Research Projects Agency network)** an experimental network of computers designed to withstand partial outages such as a bomb attack.
9. **Write about Gopher.(NOV/DEC 2013)**
   - ✓ It is a **menu based interface**.
   - ✓ It provides access to information lying on **special servers** called Gopher sites.
   - ✓ It is very user friendly.
   - ✓ Users can **move, retrieve or display files** from remote sites by selecting an item on Gopher menu.
10. **What is client-server security (APR/MAY 2013).**

    Clients server security uses various **authorization methods** to make sure that only **valid users** and programs have access to information resources such as database.

11. What is fast packet switching?(NOV 2012)

Fast packet switching is one method for **message transmission on networks**. It is a specific kind of packet switching that relies on a **new, modern** concept for data transmission.

12. What is data security(NOV 2012)

Data security refers to **protective digital privacy measures** that are applied to **prevent unauthorized access to computers**, databases and websites. Data security also protects data from corruption. Data security is the main priority for organizations of every size and genre.

13. Expand NSFNET.(NOV/DEC 2011)

National Science Foundation Network

- Its play a very important role in the commercialization of internet.
- NSFNET programme was launched to allow exchange of information and access to remote source with in the research community.

14. What is packet.(NOV/DEC 2011)

A packet contains the **source, destination, size, type, data**, and other useful information that helps packet get to its destination and read. Below is a breakdown of a TCP packet.

15. What is ISP?

Internet service providers are companies that **help users connect to the internet** for a monthly fee.

16. What is network infrastructure?

Network infrastructure is called as **information super highway** is the path through which actual information flows and moves between sender and receiver.

17. Define TELNET

TELNET is a program that allows the users to **log into computers** on the internet and use **online database**. Library catalogs, chat services and more. The services that telnet provides depends on the services provided by the host machine.

PART – B QUESTIONS

1. **Describe the globalization process of academic internet. (NOV/DEC 2015)**

The Internet has provided an opportunity to build a global information infrastructure that would link together the world's telecommunications and computer networks.

World Wide Web. The Internet has broken down communication barriers between cultures in a way that could only be dreamed of in earlier generations. Now, almost any news service across the globe can be accessed on the Internet and, with the various translation services available (like Babelfish and Google Translate), be relatively understandable

The Internet has been a key factor in driving globalization in recent years. Many jobs can now be outsourced entirely via the Internet.

Teams of software programmers in India can have a website up and running in very little time, for far less money than it would take to hire American counterparts.

Communicating with these teams is now as simple as sending e-mails and instant messages back and forth, and often the most difficult aspect of setting up an international video conference online is figuring out the time difference.

Especially for electronic services such as software, outsourcing over the Internet has greatly reduced the cost to develop a professionally coded site.

The Internet has radically changed the business world. It has enabled companies to improve their competitive edge and increased productivity, simply because of the speed of access to information, and of electronic transactions.

It allows a company based in the United States to have a customer service call center in Bangalore, staffed by highly-trained staff but with lower wage costs. On the other hand, the growth in Internet use by businesses globally also opens up new job markets for U.S. IT professionals and engineers, whose expertise is sought outside the home market.

2. **Explain the concepts of global information distribution networks(APR/MAY 2016)**

A worldwide computerized reservation network used as a single point of access for reserving airline seats, hotel rooms, rental cars, and other travel related items by travel agents, online reservation sites, and large corporations.

Global information networks are changing the world. Information networks, led by the World Wide Web, are drawing people closer together, thus giving shape to the vision of a global information society.

"The Web has evolved from a technology into a social force. The Web community must therefore actively work to explain the technology to the parts of society which are being affected."

Security and confidentiality

While there are a vast range of confidentiality issues in the area of individual communication such as e-mail, there are also open questions in the privacy policy area. In all commercial media, there is a constant tension between a desire by the public for privacy and a need for information about the viewing audience.

Sometimes the tension is left to be resolved in the marketplace, but governments have often mediated it through varying forms of privacy and data protection regulation. As the Web continues to mature as a commercial media, it is particularly prone to this dissonance due to its interactive nature.

Users often wish to provide information so as to customize their experience without forfeiting all privacy. Services wish to oblige users, while also complying with disparate legislation across multiple countries.

Information super highway allows us to share information to connect and to communicate as a globalcommunity

3. Discuss in detail about internet governance hierarchy.(APR/MAY 2015)

❖ The **rapid development** of the internet has prompted a debate about how to shape internet governance, a project that is still very much in its infancy.

❖ Hence the conceptualization of a suitable governance institution is of crucial importance for the **future of the internet as a free means of communication**.

❖ Whether this institution is linked to a **specific state, a supranational organization**, an **international non-governmental organization** or some kind of user- or supplier-determined group will be paramount for the guarantee of wise content regulation.

❖ An internet governance body should be guided by principles that are acceptable for **stakeholders from government, business and civil society.**

❖ These principles have to be accepted by the **whole internet community**. They could be **derived from basic human rights**, state security considerations, privacy and copyright rules and/or the desire to exploit the economic potential of the internet.

❖ But the motives of different stakeholders often contradict each other. The most problematic case is when **national security, political, ethical**, commercial and religious reasons are brought forward to limit the diffusion of information and access to knowledge sources. Internet governance is supposed to reconcile these concerns with **the free flow of information.**

❖ One of the pre-eminent features of the internet is its high potential for **product, service and process innovation** that can contribute substantially to **economic growth**. This potential can only be developed if commercial interests can be pursued through the networks. Hence, internet governance is not only a political concern but also an essentially **economic concern**.

3. **Write short notes on national independent ISP's.(APR/MAY 2015)**

- A national service provider is an Internet Service Provider (ISP) with a national presence. This model differs from smaller ISPs that function as local providers, **covering limited geographic areas.**
- A national service provider can serve clients **across the country**, albeit rural areas might only have partial or spotty coverage.
- A service provider that sells **broadband connections like Digital Subscriber Line** (DSL), cable or Fiber Optic Service (FiOS), sometimes offers benefits that smaller, local providers cannot.
- For example, these services might bundle **phone, television, Internet** and cellular services for one easy bill. Robust webspace plans with slicker scripting tools and, in some cases, optional built-in commercial functionality are other features a national service provider might offer. **Connectivity** can also be **more stable with less downtime** or outages, though local or small providers might also have excellent uptime records.
- The Achilles heel of a national provider often (but not always) boils down to customer service. Larger companies tend to be bureaucratic in structure, which can impede efficiency and fast service. Another disadvantage is that technical support is often outsourced

- A **national service provider** is an Internet **Service Provider** (ISP)with **national** presence. This model differs from smaller ISPs that function as **local providers**, **covering limitedgeographicareas**.

- Both the UK and the Australian **services** were created to help resolve disputes between consumers and financial **service providers**. The types of financial **service providers** covered by the ombudsman **service** include banks, insurance companies, finance companies, investment firms, and financial advisers.

4. **Explain about two major technologies underpinning high-speed global information distribution networks (APR/MAY 2014.NOV2012).**

The two major technologies used in high-speed global information distribution networks are fiber optic long-distance networks and satellites.

Long-Distance Networks

- ✓ Long-distance connectivity is available via **cable (coaxial or fiber)** owned by long-distance or interexchange carriers(IXCs).
- ✓ The **current large-scale capacity of fiber optic connections** between the US and Europe is being operate at gigabit rates. US long distance services are provided by AT&T, MCI, Sprint, WilTel.

Satellite Networks

- ✓ Satellites were used to transport **long-distance telecommunications** and one-way video broadcasts.
- ✓ The advent of fiber optics in the 1980s, changed the role of satellites in the global communications industry.
- ✓ Satellite networks do have some advantages over terrestrial networks.
- ✓ . They are accessible from any spot on the **globe**; can provide **broadband digital services, including voice, data and video to many points.**

In the 1980s, industry introduced a new class of satellite using a narrow beam to focus the transmitted energy on a small geographic area known as very small aperture terminal (VSAT) satellite. VSAT networks are being using by large corporations to link hundreds of retail sites.

5. **Give an overview of internet applications (APR/MAY 2014).**
   - ➢ E-mail
   - ➢ Internet relay chat
   - ➢ Video conferencing
   - ➢ Internet phone
   - ➢ Electronic Bullet-in board

E-mail

- ✓ Electronic mail allows computer users to **exchange message** both at **local and global levels.**

- ✓ Each user of the **e-mail has a mailbox address**.
- ✓ Messages are sent by **sender and received** by the recipient in few second .
- ✓ **Gmail.com ,yahoo.com ,rediffmail.com**.

Internet Relay Chat

- ✓ It is a service in which the participants can communicate with each other on various channels.
- ✓ The user generally runs a program **(client) to connects to a server** to other servers on the same network.

Video Conferencing

- ✓ It enables to **send images** to one or more people through **a camera attached to a computer**. It also possible to **receive pictures** back.
- ✓ It is very helpful for conducting business meeting.
- ✓ The help of **voice and video conferencing**, people can talk to one another.

Internet Phone

- ✓ Internet phones are programs designed to stimulate **phone calls over the Internet**.
- ✓ Each person on the internet phone call needs a computer with **microphone and speakers.**
- ✓ To make use of the service, the users have to download and install an internet phone program.

Electronic bullet-in board

- ✓ It is a network that provides users with **discussion group or forums**.
- ✓ A user posts article to chosen **newsgroup on the usenet**.
- ✓ It is very helpful for **collecting information** on a variety of topics.

6. Explain the components of the information superhighway infrastructure(NOV 2014)

- ✓ The information superhighway is comprised of the **physically facilities** used to **transmit, store, process, and display voice, data and images.**
- ✓ It also encompasses a wide range and ever-expanding range of equipment including **cameras, scanners, keyboards, telephones**.

- ✓ **Fax machines, computers, switches, keyboard**, CD, video and audio tape, cable, wire, satellites, optical fiber transmission lines, television, monitors, printers.
- ✓ Information superhighway is described as a high capacity.
- ✓ Interactive electronic pipeline to the home or office that is capable of supporting various electronic commerce applications.
- ✓ Information superhighway is a network that will connect every government **agencies, business entities and citizen.**

7. Explain briefly about public policy and global connectivity. (APR/MAY 2013).

- ➢ Cost
- ➢ Subsidies
- ➢ Allocation Of Scarce Resources
- ➢ Regulation
- ➢ Universal Access
- ➢ Privacy And Social Issues
- ➢ Public policy and Global connectivity

8. Discuss about computer based telephony. (NOV/DEC 2013).

- ✓ Computer telephony integration (CTI) is technology that allows interactions on a telephone and a computer to be integrated or co-ordinated.
- ✓ As contact channels have expanded from voice to include email, web, and fax, the definition of CTI has expanded to include the integration of all customer contact channels (voice, email, web, fax, etc.) with computer systems."

Computer Telephony Components

- ACD - Automatic call distribution phone systems
- Call control
- Computer-based fax
- Internet telephony
- IVR - Interactive voice response
- Predictive dialing
- Screen Pop - Display caller information

- TTS - Text To Speech
- Voice broadcast - Service broadcasts recorded phone messages
- Voice recognition
- Voice store & forward
- Web-enabled call-back

9. Explain about cellular network infrastructure (NOV 2012).

Cellular Network

Communication takes place through grid of transmitters & receivers, each one called cell.

cellular communication process works

- Log-on
- Monitoring
- Incoming calls
- Outgoing calls.
- Packet Data Network

It is a communication method that transmits the packets of data over a network via RF signals.

Packeting process works

- ✓ Transceiver breaks down the data into packets (128bytes)
- ✓ Transmits the stream of packets each with **unique no**.
- ✓ Packets are picked up by **radio towers & forwarded** to proper addressee.
- ✓ In case of any fault packets are **resend by sending modem**.

Advantages over cellular Network:

- ✓ The frequencies are less susceptible to interference and noise.
- ✓ **Transmission cost based** on data packets not connect time.
- ✓ **No roaming charges.**
- ✓ Digital encoding of transmission increases the security.

Disadvantages :

- ✓ **Slow communication** as user share bandwidth over particular network.
- ✓ Radio modem are only applicable to e-mails (no fax)
- ✓ Radio modems are **expensive and bulky**.

10. Write short notes on switches, routers and Hubs (APR 2011).

Digital switches, Routers and Hubs

- ✓ The digital switching industry has a major impact on the I-way.
- ✓ All digital bits and **data pass through switches that route** them to their intendended destination- either one or multiple recipients.
- ✓ Since the **bundles of data known as packets** and the packets moves through a network at **very high speeds**, this routing technique is known as fast packet switching.

Routers

Internetworking devices that intelligently connect the local are networks(LANs) and backbone wide are networks(WANs) or various providers.

Hubs

Act as the wiring centers for large LANs- they can diagnose line failures, measures and manage traffic flow, and greatly simplify reconfiguring large LANs.

11. What is NSFNET program ?Discuss(NOV/DEC 2011)

- ✓ The **National Science Foundation Network** (**NSFNET**) was a program of **coordinated, evolving projects** sponsored by the **National Science Foundation** (NSF) beginning in 1985 to promote advanced research and education networking in the United States.
- ✓ NSFNET was also the name given to several nationwide **backbone networks** that were constructed to support NSF's networking initiatives from 1985 to 1995.
- ✓ Initially created to link researchers to the nation's NSF-funded supercomputing centers, through further public funding and private industry partnerships it developed into a major part of the **Internet backbone**.

PART – C QUESTIONS

1. Explain the architecture and components of NSFNET(APR/MAY 2016)

ARCHITECTURE AND COMPONENTS:

- National Science Foundation (NFS) has created five super computer centers for complex and wider range of scientific explorations in mid-1980s. Until then, supercomputers were limited to military researchers and other who can afford to buy.
- NSF wanted to make supercomputing resources widely available for academic research. And the logic is that the sharing of knowledge, databases, software, and results was required. So NSF initially tried to use the ARPANET, but this strategy failed because of the military bureaucracy and other staffing problems. So, NSF decided to build its own network, based on the ARPANET's IP technology.
- The NFSNER backbone is initially connected to five supercomputing networks with initial speed 56 kbps telephone leased lines. It was considered fast in 1985 but it is too slow according to modern standards.
- Since every university could not be connected directly to the center, need of access structure was realized and accordingly each campus joined the regional network that was connected to the closest center. With this architecture, any computer could communicate with any other by routing the traffic through its regional networks, where the process was reserved to reach the destination.
- This abstraction is not completely accurate because it ignores commercial network providers, international networks, and interconnections that bypass the strict hierarchy.
- Water distribution systems may be useful analogy in understanding the technology and economics of the NSFNET program.

    1. We can think of the data circuits as pipes that carry data rather than water.
    2. The cost to an institution was generally a function of the size of the data pipe entering the campus.
    3. The campuses installed plumbing and appliances such as computers, workstations and routers. And Service cost as an infrastructure cost such as classrooms, libraries and water fountains.

- But there is no extra charge for data use.
- The mid-level networks acted like cooperatives that distributed data from the national backbone to the campuses. They leased data pipes from the telephone companies, and added services and management. So each member could access the pipe and either consume or send data.

- Some funding was also provided by the federal government.

- This model was a huge success but became a victim of its own success and was no longer effective. One main reason for it was-the network's traffic increased until, eventually, the computer controlling the network and the telephone lines connecting them became saturated. The network was upgraded several times over the last decade to accommodate the increasing demand.

The NSFNET Backbone

- The NSFNET backbone service was the largest single government investment in the NSF-funded program. This backbone is important because almost all network users throughout the world pass information to or from member institutions interconnected to the U.S. NSFNET.

- The current NSFNET backbone service dated from 1986, when the network consisted of a small number of 56-Kbps links connecting six nationally funded supercomputer centers. In 1997, NSF issued a competitive solicitation for provision of a new, still faster network service.

- In 1988, the old network was replaced with faster telephone lines, called T-1 lines that had a capacity of 1.544 Mbps compared to the earlier 56 Kbps, with faster computers called routers to control the traffic.

- By the end of 1991, all NSFNET backbone sites were connected to the new ANS-provided T-3 backbone with 45 Mbps capacity. Initial 170 networks in July 1988 to over 38,000 and traffic of initial 195 million packets to over 15 terabytes. Discussions of electronic commerce were due to the economic factor. The cost to the NSF for transport of information across the network decreased.

- It fell from approximately $10 per megabyte in 1987 to less than $1.0 in 1989. At the end of 1993, the cost was 13 cents. These cost reduction occurred gradually over a six-year period. Cost reductions were due to new faster and more efficient hardware and software technologies.

Mid-Level Regional Networks

- Mid level Regional Networks are often referred to as regional networks, are one element of the three-tier NSFNET architecture.

- They provide a bridge between local organizations, such as campuses and libraries, and the federally funded NSFNET backbone service.

- The service of Mid Level Regional Networks tends to vary from sub state, statewide and multistate coverage.

State and Campus Networks

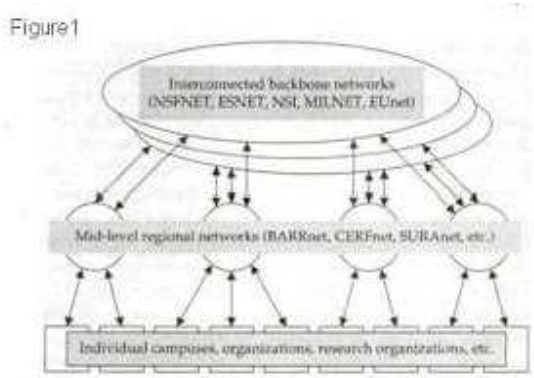
- State and campus networks link into regional networks.

- The mandate for state networks is to provide local connectivity and access to wider area services for state governments, K-12 schools, higher education, and research institutions.

- Campus networks include university and college campuses, research laboratories, private companies, and educational sites such as K-12 school districts.

- These are the most important components of the network hierarchy, as the investment in these infrastructures far exceeds that of the government's investments in the national and regional networks.

Figure1



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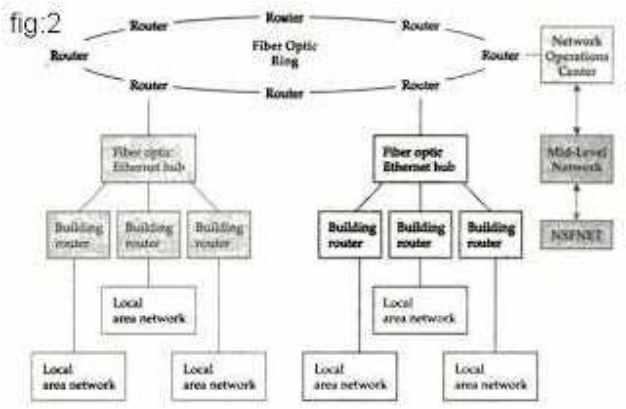


2. Explain the public issues shaping the I-way. (APR/MAY 2015, 2011).

- Cost
- Subsidies
- Allocation Of Scarce Resources
- Regulation
- Universal Access
- Privacy And Social Issues

- Public policy and Global connectivity

Cost:

The interstate **highway model**, the government construction, ownership and maintenance others support the current regulated telephone system model.

Subsidies:

Developers might hope for subsidiaries, **tax, breaks, government business**, or other firms of encouragement.

Allocation of scarce resources:

Investment of the allocation of different scarce resources would be wasted or not.

Regulation:

Regulation to provide **public access , privacy** and reasonable tolls. Who will fund for the highway and who will write and enforce the rules to use the highway

Universal access:

Probably the cable and phone companies deploying upgraded networks will be required to serve some consumers at prices below cost and to **extend wires to places** where other technologies would make more sense.

Privacy:

Is using on line activities secure, In late 1994, America Online(AOL) was associated for marketing customer information, after lists containing detailed information on the firms 1 million subscribers were advertised for sale in a trade magazine.

Social and religious barriers:

In cyberspace, everybody has right to write anything or publish. For many countries, where free speech is alien, the Internet presents interesting problems and policy issues.

Public policy and Global connectivity:

Achieving Global connectivity has policy implications:

- ✓ **Access to distribution** within countries including bilateral or multilateral agreements on **technical issues**.
- ✓ **Usage policy issues and Technology** standards that are adopted by various countries.

3. Explain in detail about the components of I-Way (APR/MAY 2013,2011,NOV2012)

Three major components make up the I-way infrastructure.

- Network Access Equipment
- Local on-ramps
- Global information distribution networks.

Network Access Equipments

- ✓ **CPE (Customer Premises Equipment) or terminal equipment** is a generic term for privately owned communications equipment that is attached to the network.
- ✓ This can be divided into three parts: Cable TV set-top boxes, computer based **telephony, and hubs, wiring closets, and routers or digital switches.**

Set-Top Boxes:

- ✓ A key hardware platform for I-way access will be cable **converter boxes**, also known as set-top boxes, converter boxes, and converters/descramblers.
- ✓ These boxes will have greater intelligence and more features than the existing converter boxes, such as enabling users to make phone calls, surf the interner, and even plan their viewing schedule for the week.

Computer-Based Telephony:

- ✓ The largest CPE product sectors are private branch exchanges (PBXx), **telephones, facsimile products, modems, voice processing** equipment and video communication equipment.

Digital switches, Routers and Hubs

- ✓ The digital switching industry has a major impact on the I-way.
- ✓ All digital bits and **data pass** through switches that route them to their intendended destination- either **one or multiple recipients**.
- ✓ Since the bundles of data known as packets and the packets moves through a network at very high speeds, this routing technique is known as fast packet switching.

Routers

Internetworking devices that intelligently connect the local are networks(LANs) and backbone wide are networks(WANs) or various providers.

Hubs

Act as the wiring centers for large LANs- they can diagnose line failures,measures and manage traffic flow, and greatly simplify reconfiguring large LANs.

Local on-ramps

- ✓ Local or access roads, or on-ramps,simply linkages between **businesses, schools, and homes** to the commnications backbone.
- ✓ This component is often called the "last mile" in the telecommunications industry.
- ✓ The providers of access ramps can be differentiated into four categories**: telecom-based, cable TV-based, wireless-based and computer-based on-line information services that include value-added networks(VANs).**

Global information distribution networks

The two major technologies used in high-speed global information distribution networks are fiber optic long-distance networks and satellites.

Long-Distance Networks

- ✓ Long-distance connectivity is available via **cable (coaxial or fiber)** owned by long-distance or **interexchange** carriers (IXCs).
- ✓ The current large-scale capacity of fiber optic connections between the US and Europe is being operate at gigabit rates. US long distance services are provided by AT&T, MCI, Sprint, WilTel.

Satellite Networks

- ✓ Satellites were used to transport **long-distance telecommunications** and one-way video broadcasts.
- ✓ The advent of fiber optics in the 1980s, changed the role of satellites in the global communications industry.
- ✓ Satellite networks do have some advantages over terrestrial networks.
- ✓ They are accessible from any spot on the globe; can **provide broadband digital services, including voice, data and video to many points.**

In the 1980s, industry introduced a new class of satellite using a narrow beam to focus the transmitted energy on a small geographic area known as very small aperture terminal (VSAT) satellite. VSAT networks are being using by large corporations to link hundreds of retail sites.

4. **Explain the logistics of being an internet service provider. (APR/MAY 2014)**
   - ✓ Internet Service Provider came into existence when **commercialization of internet** was announced.
   - ✓ An internet service provider is an organization that **provides individuals and other companies** access to the internet and other related services such as **website building and virtual hosting.**
   - ✓ It provides internet accounts, whether dial-up, **ISDN, cable, satellite, wireless**.
   - ✓ Internet service providers provide **access** to the various **internet application resources.**
   - ✓ Internet service provider plays an important role in the growth of commercial **online internet** landscape.
   - ✓ **Telecommunications, cable and commercial online** companies provide internet access.
   - ✓ Internet service providers provide a **variety of services and technologies**. some of them are as follows;
     - Internet access for **individual and organizations**.
     - **Payment system** for online purchases.
     - Network management, system integration for other service providers.
     - Client and server software for navigating and publishing content of the internet.

5. **Explain detail in Commercialization of Internet**.

   Internet is a network of networks that connects computers all over the world.The ability to provide data in a user friendly manner has led to the commercialization of internet. Three path breaking development in the very important role in the commercialization of internet.

   - ➢ WAIS

- Gopher
- WWW

Internet Service Providers

- ✓ ISP came into existence when the commercialization of internet was announced
- ✓ ISP is an organization that provides individuals and other companies access to the internet and other related services.
- ✓ It provides internet accounts,dial-up,ISDN,cable,satellite,DSL or wireless.
- ✓ Internet service providers provide paid access to the various internet applications and resources.
- ✓ Internet service important role in growth of commercialization internet ,tele communications, cable and commercial online companies.

  ISP provide variety of services and technologies as follows
    - Internet access for individuals and organizations
    - Payment systems for online purchases
    - Network management system integration for other service providers.
    - Client and server software for navigating and publishing content on the internet.

6. Briefly explain the elements of E-commerce applications(NOV/DEC 2013)

The following are some of the widely used e-commerce applications:

- E Marketing
- E Advertising
- E Banking
- Mobile Commerce
- E-Learning
- E Shopping
- Online training
- Entertainment

e-MARKETING

Internet marketing, or online marketing, refers to advertising and marketingefforts that use the Web and email to drive direct sales via electronic commerce, in addition to sales leads from Web sites or emails.

- **E Advertising**

  Online advertising, also called online marketing or Internet advertising or web advertising, is a form of marketing and advertising which uses the Internet to deliver promotional marketing messages to consumers. Consumers view online advertising as an unwanted distraction with few benefits and have increasingly turned to ad blocking for a variety of reasons.

- **E Banking**

  Online banking, also known as internet banking, e-banking or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services.

- **Mobile 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). Known as next-generation e-commerce, m-commerce enables users to access the Internet without needing to find a place to plug in.

- **E-Learning**

  Smart learning is a component of the smart city concept. Bernard Luskin, an educational technology pioneer, advocated that the "e" of e-learning should be interpreted to mean "exciting, energetic, enthusiastic, emotional, extended, excellent, and educational" in addition to "electronic."

- **E Shopping**

  Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser.

Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers.

- **Online training**

  The delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material.

- **Entertainment**

  Entertainment is a form of activity that holds the attention and interest of an audience, or gives pleasure and delight. It can be an idea or a task, but is more likely to be one of the activities or events that have developed over thousands of years specifically for the purpose of keeping an audience's attention

E-COMMERCE
Unit – III
Question & Answer

Syllabus:

UNIT III: Network security and firewalls - client server network security - firewalls and network security - data and message security - encrypted documents and electronic mail.

PART – A QUESTIONS

1. **List out the categories of message security in e commerce? (APR/MAY 2016)**

   E-commerce security is the protection of e-commerce assets from unauthorized access, use, alteration, or destruction.

   - **Integrity:** prevention against unauthorized data modification
   - **Non repudiation:** prevention against any one party from reneging on an agreement after the fact
   - **Authenticity:** authentication of data source
   - **Confidentiality:** protection against unauthorized data disclosure
   - **Privacy**: provision of data control and disclosure
   - **Availability**: prevention against data delays or removal

2. **What is PGP? (APR/MAY 2016)**

   Pretty Good Privacy or PGP is a popular program used to encrypt and decrypt email over the Internet, as well as authenticate messages with digital signatures and encrypted stored files.

3. **Define trust based security. (APR/MAY 2015)**

   - ✓ Trust based security means to **trust everyone** and **do nothing extra for protection**.
   - ✓ It is possible **not to provide access restrictions** of any kind.

4. **What is called proxy application gateway? (APR/MAY 2015)**

Proxy application program running on a firewall machine is the one which acts an behalf of **all members of an organization wanting to use the internet**.

5. **What is called physical security holes? (NOV 2014)**
   - ✓ **Physical security holes** individuals' gain unauthorized physical access to a computer.
   - ✓ Example of **workstation room, the hackers** gain access to network system by **guessing password of various users**.
6. **Define packet shiffing. (NOV 2014)**

Thread of data security is packet sniffing (unauthorized network monitoring), sniffers use the network traffic ex: Telnet, FTP login session.

7. **What is called Firewall? (APR/MAY 2014)**

Firewalls are very common technical measure used by organizations **to protect their IT system**s from unauthorized access.

8. **Mention the three categories of threats of message security. (APR/MAY 2014)**
   - ✓ Confidentiality
   - ✓ Integrity
   - ✓ Authentication
9. **Why to have message integrity? (NOV/DEC 2013)**

It is unauthorized combining of message either by intermixing, concatenation. **Error detection code, check sum, sequence** no and encryption technique are the methods of integrity.

10. **What is client server security? (APR/MAY 2013,APR 2011)**

Client server security uses various authorization methods to make sure that **only valid user** and programs have access to information resources such as database.

11. **What is Virus? (APR/MAY 2013)**

A computer **virus is a program or piece of code** that is loaded onto your computer without your knowledge and runs against your wishes. Viruses can also replicate themselves.

12. What is proxy application gateway? (APR/MAY 2013)

It is special server that typically runs on a **firewall machine**.Their primary use is access to applications such as the **world wide web from within a secure perimeter**.

13. What is a worm? (APRIL 2011)

- ✓ It is a **computer program** that can run independently.
- ✓ It can **multiply itself** on the computer that has been affected.
- ✓ Worm spread **quickly through internet**.

14. What do you meant by data transaction security?(NOV/DEC 2011)

It ensures **the privacy and confidentiality** in electronic message and data packets, including the authentication **of remote users** in network transactions for activities such as **online payments.**

15. Define Trojan Horse. (NOV/DEC 2011)

Trojan horse is a program in which **malicious or harmful code** is contained inside apparently harmless programming or data in such a way that it can get control and do its chosen form of damage, such as ruining the **file allocation table** on your **hard disk**.

16. Distinguish between encryption and decryption. (APR/MAY 2010)

ENCRYPTION	DECRYPTION
Encryption is the mutation of information in any form(text,video, and graphics) into a representation unreadable by anyone without a decryption key.	The process of decoding data that has been encrypted into a secret format.

17. What is digital Certificate?

A digital certificate is **a pair of files on computer** that use to create the digital equivalent of **handwritten signature**s and scaled envelops.

18. What is digital signature?

It is used to verify the authenticity of the message and claimed identify of the sender but also to verify message integrity.

PART – B QUESTIONS

1. **Explain the method used to secure client server network? (APR/MAY 2016)**

Secure Sockets Layer (SSL) is a computer networking protocol for securing connections between network application clients and servers over an insecure network, such as the internet.

Due to numerous protocol and implementation flaws and vulnerabilities, SSL was deprecated for use on the internet by the Internet Engineering Task Force (IETF) in 2015 and has been replaced by the Transport Layer Security (TLS) protocol. While TLS and SSL are not interoperable, TLS is backwards-compatible with SSL 3.0.

SSL was originally specified in the 1990s as a proprietary protocol that allowed Netscape browser clients using the Hypertext Transfer Protocol (HTTP) to communicate securely with Netscape web servers. SSL eventually came to be used to secure authentication and encryption for communication at the network transport layer.

SSL uses a combination of public key and symmetric key encryption to secure a connection between two machines, typically a web or mail server and a client system, communicating over the internet or another TCP/IP network. SSL provides a mechanism for encrypting and authenticating data sent between processes running on a client and server.

SSL runs above the transport layer and the network layer, which are responsible for the transport of data between processes and the routing of network traffic over a network between client and server, respectively, and below application layer protocols such as HTTP and the Simple Mail Transport Protocol. The "sockets" part of the term refers to the sockets method of passing data between a client and a server program in a network or between processes in the same computer.

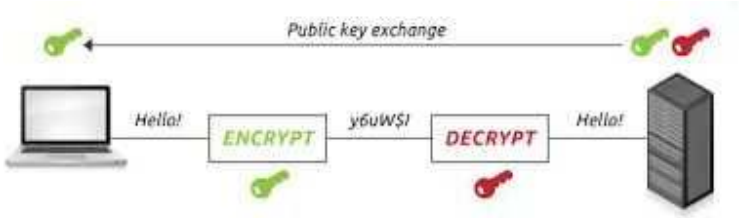
The TLS protocol evolved from SSL and has officially superseded it, although the terms SSL or SSL/TLS are still commonly used to refer to the protocol used to secure

web/internet traffic. SSL/TLS is the most widely deployed security protocol used today and, according to Google, it is being used to secure more than 50% of the pages loaded by the Chrome browser. In addition to supporting the transmission of web pages, SSL has been implemented for applications including email, file transfer, instant messaging and voice over IP.

2. Working of Secure Sockets Layer (SSL)?

The SSL protocol includes two subprotocols: the record protocol and the "handshake" protocol.

The handshake protocol defines how a client and server establish an SSL connection, including the negotiation of which cryptographic systems each host is willing (or unwilling) to use for communication, as well as the exchange of cryptographic material, such as public keys and session keys for encryption or authentication of transmitted data.



The record protocol defines how communicating hosts exchange data using SSL, including specifications for how data is to be prepared for transmission and how it is to be verified or decrypted on receipt.

As part of the initial handshake process, a server presents its digital certificate to authenticate itself to the client. Server certificates follow the X.509 certificate format defined by the Public Key Cryptography Standards. The authentication process uses

public key encryption to validate the digital certificate and to confirm that a server is, in fact, the server it claims to be.

Once the server has been authenticated, the client and server establish cipher settings and a shared key to encrypt the information they exchange during the remainder of the session. This provides data confidentiality and integrity. This whole process is invisible to the user. For example, if a webpage requires an SSL connection, the URL will change from HTTP to HTTPS, and a padlock icon will appear in the browser once the server has been authenticated.

The handshake also allows the client to authenticate itself to the server. In this case, after server authentication is complete, the client must present its certificate to the server to authenticate the client's identity before the encrypted SSL session can be established.

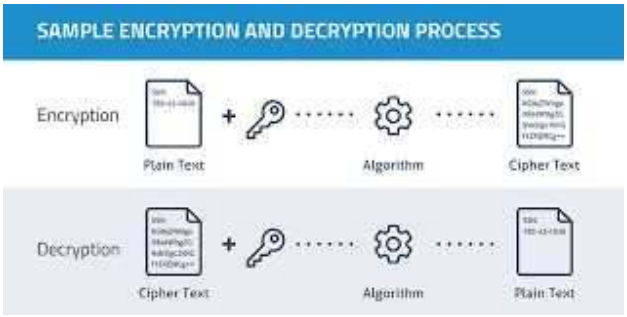
After the IETF officially took over the SSL protocol to standardize it through an open process, version 3.1 of SSL was released as TLS 1.0 (The name was changed to avoid any legal issues with Netscape).

Many attacks against SSL have focused on SSL implementation issues, but the POODLE (Padding Oracle On Downgraded Legacy Encryption) vulnerability is a known flaw in the SSL 3.0 protocol itself, exploiting the way in which it ignores padding bytes when running in cipher block chaining mode.

This flaw allows an attacker to decrypt sensitive information, such as authentication cookies. TLS 1.0 is not vulnerable to this attack because it specifies that all padding bytes must have the same value and must be verified.

3. Describe the importance of encrypted documents? (APR/MAY 2016)

Encryption, is the process of changing information in such a way as to make it unreadable by anyone except those possessing special knowledge (usually referred to as a "key") that allows them to change the information back to its original, readable form.



Encryption **is important** because it allows you to securely protect data that you don't want anyone else to have access to. Businesses use it to protect corporate secrets, governments use it to secure classified information, and many individuals use it to protect personal information to guard against things like identity theft.

Espionage uses encryption to securely protect folder contents, which could contain emails, chat histories, tax information, credit card numbers, or any other sensitive information. This way, even if your comptuer is stolen that data is safe.

4. Summarize the concept behind message security.(APR/MAY 2015), How to ensure data security? Discuss.(NOV/DEC 2013)

Data Security: It is important when people are considering banking and financial transaction by PC.Major threat of security is packet sniffing(unauthorized network monitoring),sniffers use the network traffic ex:Telnet,FTP login session through it gains the information like username and password.

I. **Message confidentially**

- ✓ Is need for sensitive data such as **credit card numbers, employee records, government files**,etc.
- ✓ Environment must **protect all message** traffic .Distributed and wireless network valunrate the data communication.

II. **Message and system integrity**

- ✓ It is unauthorized combining of message either by intermixing, concatenation.
- ✓ **Error detection code, check sum, sequence no and encryption** technique are the methods of integrity.

III. **Message sender authentication or identification**

- ✓ It verifies the identify of an user certain encrypted information transferred from **sender to receiver**.

2. **List and explain the three ways that manifest client-server network security problems. (APR/MAY 2015)**

Client server network security problems manifest themselves in three ways;

- Physical security holes
- Software Security holes
- Inconsistent usage holes

Physical security holes

- ✓ Public workstation so that any **hacker can temper the first data**.
- ✓ On the **Network, guess passwords**.

Software Security holes

- ✓ Badly written program like''send mail''hole during 1988.
- ✓ Recently in IBM CRS -6000 workstation, a root shell with highest level of access was possible and could be **used to delete the entire file system**.

Inconsistent usage holes

- ✓ System administrator assembles a **combination of Hardware and software** such that seriously flawed from security point of view.
- ✓ This is common when software is more complex.

3. **Discuss about data encryption standard (DES). (NOV 2014).**

- ✓ The **data encryption** standard is a block cipher operating on 64-bit data blocks.

- ✓ DES was designed by IBM and adopted by the U.S.government as the standard **encryption** method for nonmilitary and non classified use.
- ✓ DES has two **transposition blocks and 16 complex round ciphers**. Although the 18 iteration round ciphers are conceptually the same,each uses a different key derived from the original key.
- ✓ The initial and **final permutation** takes a permutations that are the inverse of each other.

4. **Write short note on hardened firewall host (APR/MAY 2014)**
   - ✓ A hardened **firewall host is a stripped-down machine** that has been configured for **increased security**.
   - ✓ This type of firewall required **inside or outside** users to connect to the trusted applications on the firewall machine before connecting further.

   Creating a hardened host requires several steps:
   - Removing all user accounts except those **necessary for operation of the firewall**, the logic being that, if users cannot **log in to the firewall host**, they cannot subvert the security measure.
   - Removing all noncrucial files and executables, especially network server programs and **client program like FTP and telnet**.
   - **Extending traffic logging and monitoring** to check remote access.
   - Disabling IP forwarding to prevent the firewall from forwarding unauthorized packets between the internet and enterprise network.
5. **Describe about encrypt document and e-mail. (APR/MAY 2014)or Summarize the idea behind pretty good privacy).(NOV 2014,2013)**

   Most email message send travel vast distances over many networks, secure and insecure, monitored and unmonitored, passing through and making copies of themselves on servers all over the Internet.

   Two confidential sender authentication methods

   PGP (Pretty Good Privacy)

   - ✓ It is a free software.

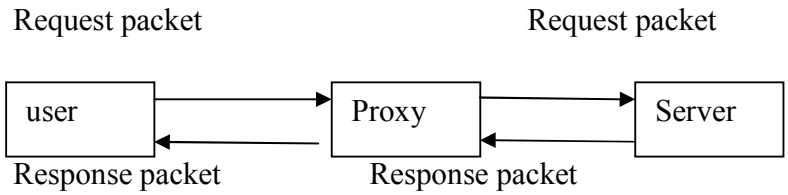
- ✓ **Encrypt email, software** wont protect against the focused attention of a major government, but it will stop efforts to harvest **credit card numbers** and information that can be used to commit identity theft.
- ✓ Email encryption is **easy, free and offers strong protection** against prying eyes.

PEM (Privacy Enhanced Mail)

- ✓ There is **increasing interest in using email to transmit private information**, and to be able to **verify that validity of email**.
- ✓ Easy to use, the **first time use privacy** enhanced mail, have some setup to do.
- ✓ Allow to send documents in ‘’encrypted ‘’from, meaning that they are encoded in such a way that only the recipient can read them.
- ✓ Allow to **digitally sign a message**.

6. Explain briefly about proxy server on WWW.(APR/MAY 2013)

- ✓ Part of an overall **Firewall strategy**.
- ✓ Sits between the local network and the external network.
- ✓ Originally used primarily as a caching strategy to minimize outgoing **URL requests and increase perceived browser performance.**
- ✓ Primary mission is now to insure anonymity of internal users.
- ✓ Still used for caching of **frequently requested files**.
- ✓ Also used for **content filtering** .
- ✓ Acts as a go-between, submitting your requests to the external network.
- ✓ Requests are translated from your **IP address to the Proxy’s IP address**.
- ✓ E-mail addresses of internal users are removed from request headers.
- ✓ Cause an actual break in the flow of communications.
- ✓ TCP connections terminals. Both the **outgoing and incoming** TCP connections are terminated.
- ✓ **Prevents a hacker** from hijacking a stale connection on a service that is being proxies.
- ✓ **Ex. HTTP page request.**



Security advantage:

- ✓ **Connection left open** until the proxy closes it after receiving response packet and sending it back to user.
- ✓ Connection only left open until server closes the connection after **sending the response packet**.
- ✓ Terminates the TCP connection before relaying to target host (in and out)
- ✓ **Hide internal clients** from external network
- ✓ **Blocking of dangerous URLs**
- ✓ Filter dangerous content.
- ✓ Check consistency of retrieved content
- ✓ **Eliminate** need for transport layer routing between networks
- ✓ Single point of access, control and logging

PART – C QUESTIONS

1. **Describe encryption as the basis for data and message security.(APR/MAY 2015).**

Security is an essential part of any transaction that takes place over the internet. Customer will loose his/her faith in e-business if its security is compromised.

Following are the essential requirments for safe e-payments/transactions:

- **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-Repudiabiity** - 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. Similary the receipient of message should not be able to deny receipt.
- **Encryption** - Information should be **encrypted and decrypted** only by **authorized user**.
- **Auditability** - Data should be recorded in such a way that it can be audited for integrity requirements.

The data and message security ensured in e-business via:

- **Encryption**: This technology deploys a public key and a private key infrastructure to ensure security. The public key can be distributed but the private key remains only with the user and the service provider. So, it works just like **the username and password system of your e-mail account.**
- **Digital signatures**: This technology requires a recipient's password to decode the encrypted data. The **sender's authentication** gets confirmed through a **digital certificate**, issued by credible authorities such as Verisign and Thawte.
- **Secure socket layers (SSL)**: This process involves both **public key and digital certificate technologies to ensure privacy and authentication**. To initiate the process, a client asks for authentication from the server, which is done through a digital certificate. Then, both the client and server design session keys for data transfer. The session will expire following any modification or prolonged period of inactivity.
- **Firewalls**: This includes **both software and hardware that protects** the network against hackers and viruses. Installing premium quality anti-virus programs and spyware helps to fortify e-commerce protection from malicious threats.
- **Access control**: Restricting user access to information on the site is an **effective way to control the site's security**. Researches show that most e-commerce malfunctions occur due to users' ignorance. Access control measures can include:
    - Restrictions on the use of CDs/DVDs or USB storage devices in the company.
    - Limit over opening of personal accounts, such as **Gmail, Yahoo or MSN**, through official network.

- **Network restrictions to regulate access** to external network or system resources.
- Application control to restrict entry into sensitive environment.

- **Detection programs**: These programs monitor network operations for any suspicious activity. They will **generate an alert if a potential attack is suspected**.
- **Revising for new threats**: Business enterprises must **constantly update e-commerce security plans to remain protected from new threats**.

2. Write an essay about firewalls and network security.(NOV/DEC 2014, APR/MAY 2016).

- ✓ A firewall is a network security system that controls the **incoming and outgoing network traffic based on an applied rule set**.
- ✓ A firewall establishes **a barrier between a trusted**, secure internal network and another network (e.g., the Internet) that is assumed not to be secure and trusted.
- ✓ Firewalls exist both as **software** to run on general purpose hardware and as a **hardware appliance.**
- ✓ Many hardware-based firewalls also offer other **functionality to the internal network** they protect, such as acting as a DHCP server for that network.
- ✓ Many personal computer operating systems include software-based firewalls to protect against threats from the **public Internet**.
- ✓ Many routers that pass data between networks contain firewall components and, conversely, many firewalls can perform basic routing functions.

Types of Firewall:

There are different types of firewalls depending on where the communication is taking place, where the communication is intercepted and the state that is being traced.

- Packet Filtering Firewall
- Circuit level Gateways
- Application level Gateways
- Stateful Multilayer Inspection Firewall

Packet Filtering Firewall

- ✓ **Network layer firewalls**, also called packet filters, operate at a relatively low level of the TCP/IP protocol stack, not allowing packets to pass through the firewall unless they match the established rule set.
- ✓ The firewall administrator may define the rules; or **default rules may apply.**
- ✓ Packet filtering filtering firewall functions at the **network layer of the OSI model**.
- ✓ In packet filtering firewall, **each incoming and outgoing packet** is compared to a set criteria it is forwarded.

Circuit level Gateways

- ✓ Circuit level gateways works at the session layer **of OSI model or the TCP layer of TCP/IP.**
- ✓ Data in and out are protected on the criteria of the **session rules**.
- ✓ The handshaking between packets are monitored to determine the validity of the requested session.

Application level Gateways(Proxy server)

- ✓ Application level gateways are also known as **proxy servers**. They are similar to circuit level gateways.
- ✓ Data in and out are processed on the criteria of the **application rules like HTTP,FTP** etc.
- ✓ They filter packets at the application level of the OSI model.
- ✓ Since proxy screens packet level, they can filter application specific command such as HTTP etc.

- Stateful Firewalls
- Stateless Firewalls

Stateful Firewalls

- ✓ Stateful firewalls maintain context about **active sessions**, and use that "state information" to speed packet processing.
- ✓ If a packet does not match an existing connection, it will be evaluated according to **the rule set for new connections**.

- ✓ If a packet matches an existing connection based on comparison with the firewall's state table, it will be allowed to pass without further processing.

Stateless Firewalls

✓ Stateless firewalls require less memory, and can be **faster for simple filters** that require less.

✓ Stateless firewalls require less memory, and can be faster for simple filters that require **less time to filter than to look up a session**.

✓ They may also be necessary for **filtering stateless network protocols** that have no concept of a session. However, they cannot make more complex decisions based on what stage communications between hosts have reached.

3. Explain detail about client-server network security.(APR/MAY 2014,2011).

✓ Network security on the internet is a major concern for **commercial organizations**, especially top management .

✓ Internet connection effectively breaches the **physical security** perimeter of the corporate network and opens itself to access from other networks comprising the public internet.

Types of holes in Client-Server Network Security

Client server network security problems manifest themselves in three ways;

- Physical security holes
- Software Security holes
- Inconsistent usage holes

Physical security holes

✓ Public workstation so that any **hacker can temper the first data**.

✓ On the **Network, guess passwords**.

Software Security holes

- ✓ Badly written **program like''send mail''hole** during 1988.
- ✓ Recently in IBM CRS -6000 workstation, **a root shell with highest level** of access was possible and could be used to delete the entire file system.

Inconsistent usage holes

- ✓ System administrator assembles a combination of **Hardware and software** such that seriously flawed from security point of view.
- ✓ This is common when software is more complex.

Trust-based Security

Trust everyone and do nothing extra far protection.

Security Through Obscurity

- ✓ Any Network is secured so far as **nobody outside** its **management group** is allowed to find out anything about its operational details.

Password Schemes

- ✓ **First level barrier** to accidental intrusion.

Biometric System

- ✓ Most secure level of authorization involving some unique aspect of a person body. Past biometric authentication was based on comparison **of finger prints**, palm prints or signature verification.
- ✓ Many **biometric devices are costly.**
- ✓ Some system takes **10 to 30 sec**,to verify an access request.

4. What is cryptography? Explain in detail. (APR/MAY 2013).

Cryptography is a technique to provide **message confidentiality** .The term cryptography is a **Greek word** which means **"secret writing".** It is an art and science of transforming

message so as to make them **secure and immune to attacks**. Cryptography involves the process of encryption and decryption.

Public –Key Cryptography

Public-key cryptography ,also known as **asymmetric cryptography** ,is a form of cryptography in which a user has a **pair of cryptographic keys-public key and private key. Public-key** cryptography is a cryptographic approach which involved the use asymmetric key algorithms instead of or in addition to symmetric key algorithm.

There are two problems with symmetric key cryptography:

Key Distribution

Secure communications in general without having to trust a KDC with your key.

Digital Signature

Verify a message comes intact from the claimed sender.

5. **Explain detail in digital certificate.**

Digital Certificate:

- ✓ It is an **electronic document** used to prove **ownership of a public key**. The certificate includes information about the key, information about its owner's identity, and the digital signature of an entity that has **verified the certificate's contents are correct**.
- ✓ If the **signature is valid**, and the person examining the **certificate trusts the signer**, then they know they can use that key to **communicate with its owner**.
- ✓ The most common use of a digital certificate is to verify that a user sending a message is who he or she claims to be, and to provide the receiver with the means to **encode a reply**.
- ✓ An individual wishing to send an encrypted message applies for a digital certificate from a **Certificate Authority** (CA). The CA issues an encrypted digital certificate containing the applicant's public key and a variety of other identification information.
- ✓ The CA makes its own public key readily available through print publicity or perhaps on the Internet.
- ✓ The recipient of an encrypted message uses the CA's public key to **decode the digital certificate attached to the message**, **verifies it as issued by the CA** and then obtains the

sender's public key and identification information held within the certificate. With this information, the recipient can send an encrypted reply.

Contents Of a Typical Digital Certificate:

- **Serial Number:** Used to uniquely identify the certificate.
- **Subject:** The person, or entity identified.
- **Signature Algorithm**: The algorithm used to create the signature.
- **Signature:** The actual signature to verify that it came from the issuer.
- **Issuer:** The entity that verified the information and issued the certificate.
- **Valid-From**: The date the certificate is first valid from.
- **Valid-To**: The expiration date.
- **Key-Usage:** Purpose of the public key (e.g. encipherment, signature, certificate signing...).
- **Public Key:** The public key.
- **Thumbprint Algorithm**: The algorithm used to hash the public key certificate.
- **Thumbprint** (also known as fingerprint): The hash itself, used as an abbreviated form of the public key certificate.

E-COMMERCE
Unit – IV
Question & Answer

Syllabus:

UNIT IV: Electronic Commerce and world wide web, consumer oriented E-commerce, Electronic payment systems, Electronic data interchange (EDI), EDI applications in business, EDI and E-commerce EDI implementation.

PART – A QUESTIONS

1. **Specify the risks in electronic payment. (APR/MAY 2016)**

Tax Evasion

Businesses are required by law to provide records of their financial transactions to the government so that their tax compliance can be verified. Electronic payment however can frustrate the efforts of tax collection

Fraud

Electronic payment systems are prone to fraud. The payment is done usually after keying in a password and sometimes answering security questions. There is no way of verifying the true identity of the maker of the transaction.

Impulse Buying

Electronic payment systems encourage impulse buying, especially online. Impulse buying leads to disorganized budgets and is one of the disadvantages of electronic payment systems.

Payment Conflict

Payment conflicts often arise because the payments are not done manually but by an automated system that can cause errors

2. **Mention the types of EDI access methods. (APR/MAY 2016)**

- Discretionary Access Control (DAC)
- Mandatory Access Control (MAC)

- Role Based Access Control (RBAC)

3. **What are the categories of consumers? (NOV/DEC 2015)**

   - Product focused
   - Browsers
   - Researchers
   - Bargain hunters
   - One-time shoppers

4. **Define Hypertext.(APR/MAY 2015)**

   Hypertext is an approach information management in which data are **shared in the network of document connects by links.**

5. **Mention the three basic categories of credit card payment on on-line networks. (APR/MAY 2015)**

   - ✓ Banking and financial payments
   - ✓ Retailing payments
   - ✓ On-line electronic commerce payments.

6. **What is known as a hypermedia system? (NOV 2014)**

   A hypermedia system is **made up of nodes** (documents) and links .A node generally represents a simple concept and idea. Nodes can contain **texts, graphics, audio, video, images** etc.

7. **Mention the four properties of electronic cash. (NOV 2014)**

   - ✓ Digital cash must have a **monetary value.**
   - ✓ Digital cash must be **exchangeable**.
   - ✓ It should **storable and retrievable**.
   - ✓ It should not be easy to copy or tamper with while it is being exchanged.

8. **Write the acronym for HTTP and URL? (APR/MAY 2014)**

   - **HTTP-H**yper **T**ext **T**ransfer **Protocol .**A protocol for transferring efficiently between the requesting client and server.

   - **URL-U**niform **R**esource **L**ocator - To use the libraries and location on a shelf as a metaphor.

9. List three types of electronic tokens. (APR/MAY 2014)

- ✓ Electronic cash.
- ✓ Electronic check.
- ✓ Smart card or Debit card.

10. What is URL? (NOV/DEC 2013)

URL is an acronym for **Uniform Resource Locator** and is a reference (an address) to a resource on the Internet.

The following is an example of a URL:

http://ecom.online.com/

the protocol identifier ,the resource name

11. Define WWW. (NOV/DEC 2013)

The World Wide Web(WWW) is currently the most popular Internet navigation tool for **finding and getting information** in a multimedia format with color graphics, audio, and video.

12. What is mercantile transaction? (APR/MAY 2013)

Mercantile process defines **interaction models** between **consumers and merchants for online commerce**. This is necessary because to buy and sell **goods, buyer, seller and other parties**. The absence of a common process for managing and completing transaction will result in electronic commerce.

13. Define CPE. (APR/MAY 2011)

Customer premises equipment (CPE) is a generic term for **privately owned communications equipment that is attached to the network**.

14. What is encryption? (APRIL 2011)

Encryption is the process of **encoding messages or information** in such a way that only authorized parties can read it.

15. What is EDI?(NOV/DEC 2011)

Electronic Document Interchange is the **interchange of standard formatted data** between computer application systems of trading partners with minimal manual intervention.

16. Give any four benefits of EDI. (NOV/DEC 2011)

- ✓ **Reduction in transaction costs.**
- ✓ Foster closer **relationships** between **trading partners**.
- ✓ Provide the opportunity to **improve customer service**.
- ✓ Reduced the **administrative cost**.

17. Write any two EDI applications in business.

- Electronic funds transfer
- Manufacturing& retail procurement

18. What is meant by Document-Oriented computing?

The term object is being **used interchangeably with document resulting** in a new form of computing called Document Oriented computing.

PART – B QUESTIONS

1. Discuss on international trade and EDI. (NOV/DEC 2015)

As informational aspects of international trade become more important, the strategic positions of ocean port communities become increasingly dependent on the quality and availability of telecommunication and processing infrastructures.

It develops two frameworks to assess the level and nature of electronic trade integration within the context of a port community enterprise model. Port communities throughout the world are applying electronic data interchange (EDI) to trade functions because it enables open communications among many partners, provides acceptably quick communications for relatively low cost, and offers the prospect of significant savings in time and cost through reduced data capture volume and error-rates.

EDI enables not only internal efficiencies but also the creation of new trade services. The first framework specifies the information systems and technology needed to enable EDI in international trade. The framework comprises two levels of infrastructure: communications and documentary; both supporting a third superstructure of business processes. Port communities are evolving from providing not only goods-handling facilities but offering advanced data-handling and processing systems as well. As

competition between ports increases, information systems become key elements in their strategic positions.

A second framework provides the structure for understanding physical and informational strategies of ports and port communities, and to examine their importance. Port communities may follow several models of infrastructure integration in moving towards their strategic objectives.

However, realizing this potential requires research to determine the specific configurations that will fit into each trade environment. The contributions of this research to governments and corporations are primarily to provide models of successful application of EDI to international trade, and insight into technology transfer and diffusion, corporate competitiveness and policy formulation.

2. What are the types of E-payment systems available? Explain. (APR/MAY 2016)

E-Commerce or Electronics Commerce sites use electronic payment where 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, 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)

Credit Card

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder - Customer

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

Credit card payment process

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

Debit Card

Debit card, like credit card is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank.

The major difference between debit card and credit card is that in case of payment through debit card, amount gets deducted from card's bank account immidiately 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.

Debit cards free customer to carry cash, cheques and even merchants accepts debit card more readily. Having restriction on amount being in bank account also helps customer to keep a check on his/her spendings.

Smart Card

Smart card is again similar to credit card and debit card in apperance 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/provides faster processing.Mondex and Visa Cash cards are examples of smart cards.

E-Money

E-Money transactions refers 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 saves 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.

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 day, 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.

3. **Describe the mercantile models from the merchant's perspective.(APR/MAY 2015)**
   Mercantile processes define interaction models between consumers and merchants for online commerce

Mercantile Models from the Consumer's Perspective

(i) Pre purchase preparation: The pre purchase preparation phase include search and discovery for a set of products to meet customer requirements

1. The consumer information search process.
2. The Organizational search process.
3. Consumer search experiences.
4. Information brokers & brokerages.

(ii) Purchase consummation: The purchase consummation phase include mercantile protocols

1. Mercantile process using digital cash.
2. Mercantile transaction using credit cards.
3. Costs of electronic purchasing.

(iii) Post purchase interaction: The post purchase interaction phase includes customer service &support

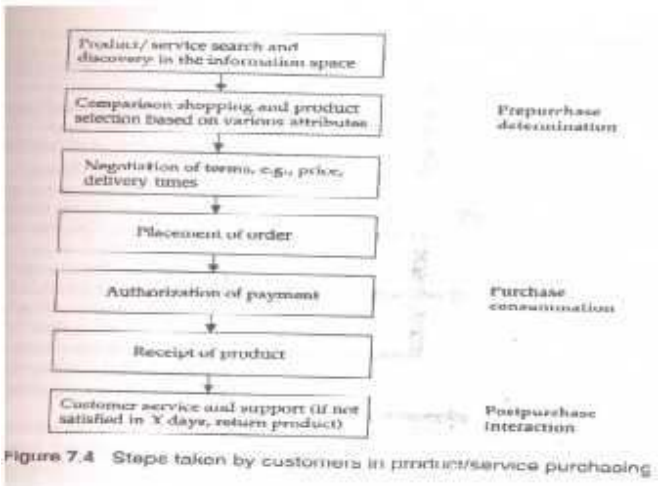


Figure 7.4 Steps taken by customers in product/service purchasing

Marketing researches have several types of purchasing:

- ✓ Specifically planned purchases
- ✓ Generally planned purchases
- ✓ Reminder purchase
- ✓ Entirely unplanned purchases

1. **The consumer information search process**

Information search is defined as the **degree of care, perception,& effort directed** toward obtaining data or information related to the decision problem

2. **The Organizational search process**

Organizational search can be viewed as a process through which an organization adapts to such changes in its external environment **as new suppliers, products, & services.**

3. **Consumer Search Experiences**

The distinction between carrying out a shopping activity "**to achieve a goal".**

4. **Information Brokers and Brokerages**

- ✓ To facilitate better **consumer and organizational search, intermediaries** called information **brokers or brokerages.**
- ✓ Information brokerages are needed for 3 reasons: **Comparison shopping, reduced search costs, and integration.**

(ii) Purchase Consummation

- ✓ **Buyer contacts vendor to purchase**.
- ✓ **Vendor states price.**
- ✓ Buyer and Vendor may or may not engage in negotiation.
- ✓ If satisfied, buyer ask the payment to the vendor.
- ✓ Vendor contacts billing service.
- ✓ **Billing service decrypts authorization** and **check buyers account balance**.
- ✓ Billing service gives to the vendor to deliver product.
- ✓ Vendor delivers the goods to buyer.
- ✓ On receiving the goods, the **buyer signs and delivers receipt**.
- ✓ At the end of the billing cycle, buyer receives a list of transactions.

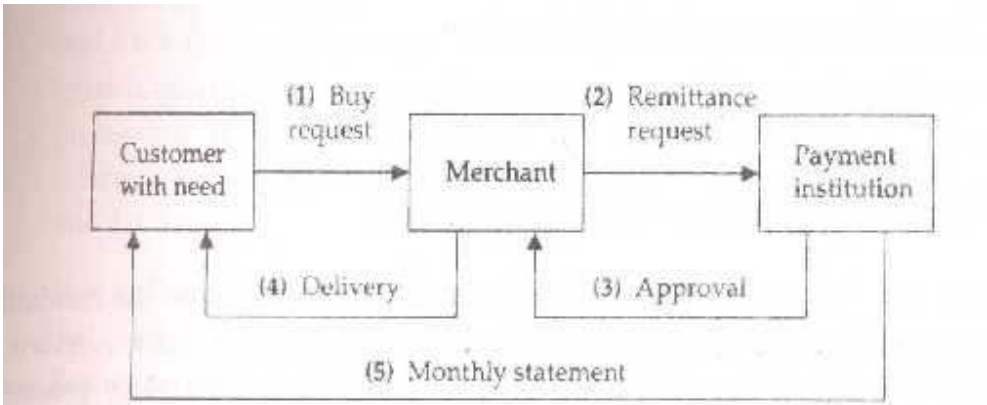


Figure 7.5 Simplified on-line mercantile model

(iii) Post purchase Interaction

- ✓ Returns and claims are an important part of the purchasing process

  Other complex customer service challenges arise in customized retailing are:
- ✓ **Inventory issues**: To serve the customer properly, a company should inform a customer right away and if the item is in stock, a company must able to assign that piece to customer
- ✓ **Database access and compatibility issues:** Customers should get kind of services by easy issues like calling an 800 number
- ✓ **Customer service issues**: To clear the doubts of customer about product

Mercantile Models from the Merchant's Perspective

- ✓ To better understanding, it is necessary to examine the order management cycle (OMC).
- ✓ The OMC includes eight distinct activities.
- ✓ The actual details of OMC vary from industry to industry and also for individual products and services

OMC has generic steps

- Order planning & Order generation.
- Cost estimation & pricing.
- Order receipt & entry.
- Order selection & prioritization.
- Order Scheduling
- Order fulfillment & delivery.

- Order billing & account/payment management.
- Post sales service.

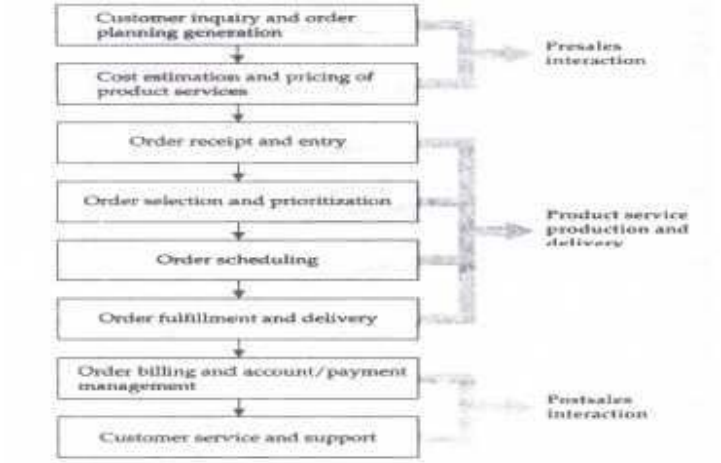


Figure 7.6 Order management cycle in e-commerce

Order planning & order Generation

- ✓ **Order planning** leads to order generation.
- ✓ Orders are generated in a no. of ways in the e-commerce environment.
- ✓ The sales force broadcasts ads (direct marketing), sends personalized e-mail to customers (cold calls), or creates a WWW page.

Cost Estimation & pricing

- ✓ Pricing is the bridge between **customer needs & company capabilities.**
- ✓ Pricing at the individual **order level** depends on understanding the value to the customer that is generated by each order, **evaluating the cost of filling each order**; & instituting a system that enables the company **to price each order based on its value & cost.**

Order Receipt & Entry

- ✓ After an acceptable price Quote, the customer enters the order receipt & entry phase of OMC.
- ✓ This was under the purview of departments variously **titled customer service, order entry, the inside sales desk, or customer liaison.**

Order Selection & Prioritization

- ✓ Customer service representatives are also often responsible **for choosing which orders to accept and which to decline.**

- ✓ Not, all customers' orders are created equal; some are better for the business.

Order Scheduling

- ✓ In this phase the prioritized orders get slotted into an actual production or operational sequence.
- ✓ This task is difficult because the different functional **departments- sales, marketing**.
- ✓ **Customer service, operations, or production-** may have conflicting goals, compensation **Systems, & organizational imperatives.**
- ✓ Production people seek to **minimize equipment changeovers, while marketing & customer.**
- ✓ Service reps argue for special service for special customers.

Order Fulfillment & Delivery

- ✓ In this actual provision of the product or service is made.
- ✓ It involves multiple functions and locations.

Order Billing & Account/Payment Management

- ✓ After the order has been **fulfilled & delivered, billing** is given by finance staff.
- ✓ The billing function is designed to serve the needs and interests of the company, not the customer.

Post sales Service

- ✓ This phase plays an increasingly important role in all elements of a company's profit equation: **customer, price, & cost.**
- ✓ It can include such elements as **physical installation of a product, repair & maintenance,**

customer training, equipment upgrading & disposal.

4. **Elucidate several factors while designing electronic payment system. (APR/MAY 2015)**

   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,& 'inancial transactions electronically-must be in place

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

Standards Without standards, the welding of **different payment users into different networks & different systems is impossible.**

5. **Elucidate the concept behind hypertext transfer protocol(HTTP)(NOV 2014)**
   - ✓ Hyper Text Transfer Protocol is underlying protocol used by the world wide web
   - ✓ HTTP defines how messages are formatted and transmitted, and what action web and browsers and browsers should take in response to various commands.
   - ✓
6. **Describe smart cards and electronic payment systems. (NOV 2014).**
   Write about various e-payment schemes.(NOV/DEC 2011)

Online E-Commerce Payments:

(a) Token Based Systems :

1. E-Cash (Digi-cash)
2. E-cheque (Net Cheques)
3. Smart cards or debits cards.

(b) Credit card based systems:

1. Encrypted credit cards.
2. Third party Authorization numbers

(c) Digital Token based Electronic payments systems:

- ✓ E-commerce sites use electronic payment, where electronic payment refers **to paperless monetary transactions.**

- ✓ Electronic payment has revolutionized the business processing by reducing the **paperwork, transaction costs**, and labor cost. Being user friendly and less time-consuming than manual processing, it **helps business organization** to expand its market reach/expansion.
- ✓ Listed below are some of the modes of electronic payments:
  - ➢ Credit Card
  - ➢ Debit Card
  - ➢ Smart Card
  - ➢ E-Money
  - ➢ Electronic Fund Transfer (EFT)

Credit Card

- ✓ Payment using credit card is one of most common mode of electronic payment**. Credit card is a small plastic card** with a **unique number** attached with an account.
- ✓ It has a magnetic strip embedded in it that is **used to read the credit card via card readers**. When a customer purchases a product via credit card, the credit card issuer bank pays on behalf of the customer and the customer has a certain time period after which pay the credit card bill.
- ✓ It is usually in the **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.

Step	Description
Step 1	Bank issues and activates a credit card to the customer on his/her request.
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Step 6	Now the card brand company asks to clear the amount from the issuer bank gets transferred to the card

Debit Card

- ✓ Debit card, like credit card, is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank.
- ✓ The **major difference between a debit card and a credit card** is that in case of payment through debit card, **the amount gets deducted from the card's bank account immediately** and there should be sufficient balance in the bank account for the transaction to get completed; whereas in case of a **credit card transaction, there is no such compulsion.**
- ✓ Debit cards free the customer to carry cash and cheques. Even merchants accept a debit card readily. Having a restriction on the amount that can be withdrawn in a day using a debit card helps the customer to keep a check on spending.

Smart Card

- ✓ Smart card is again similar to a credit card or a debit card in appearance, but it has a small **microprocessor chip** embedded in it.
- ✓ It has the capacity to store a customer's work-related and/or personal information. Smart cards are also **used to store money and the amount gets deducted after every transaction.**
- ✓ It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.
- ✓ Smart cards can only be **accessed using a PIN that every customer is assigned** with. Smart cards are secure, as they store information in **encrypted format** and

are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

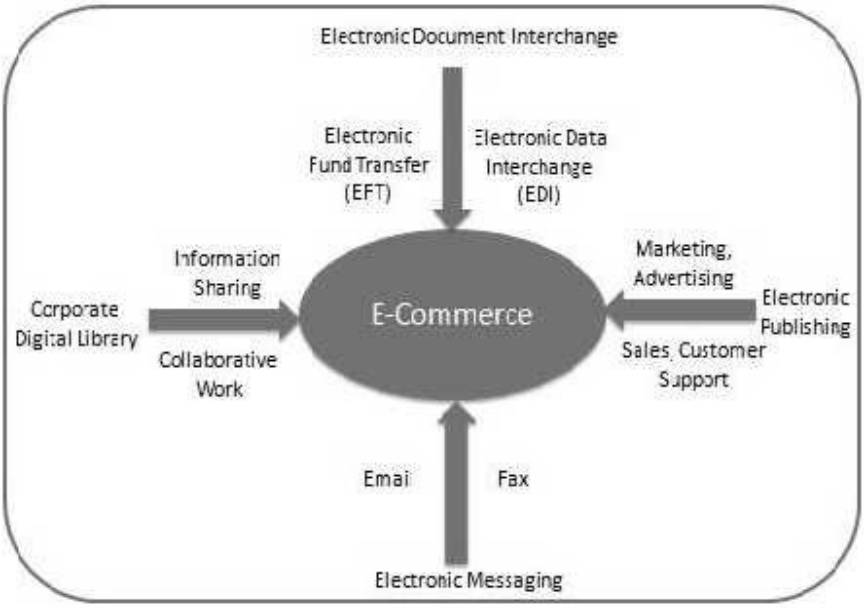
E-Money

- ✓ E-Money transactions **refer to situation where payment is done over the network** and the amount gets transferred from one financial body to another financial body without any **involvement of a middleman**.
- ✓ E-money transactions are **faster, convenient, and saves a lot of time**. Online payments done via credit cards, debit cards, or smart cards are examples of e-money transactions.
- ✓ Another popular example is e-cash. In case of e-cash, both customer and merchant have to sign up with the bank or company issuing e-cash.

Electronic Fund Transfer

- ✓ It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in the same bank or different banks.
- ✓ Fund transfer can be done using ATM (Automated Teller Machine) or using a computer.
- ✓ Nowadays, internet-based EFT is getting popular. In this case, a customer uses the website provided by the bank, logs in to the bank's website and registers another bank account.

7. Draw and explain layered architecture of EDI. (APR/MAY 2014)



E D I Layered Architecture

- ✓ Semantic (or application) layer
- ✓ Standards translation layer
- ✓ Packing (or transport) layer
- ✓ Physical network infrastructure layer

EDI semantic layer	Application level services	
EDI standard layer	EDIFACT business form standards	
	ANSI X12 business form standards	
EDI transport layer	Electronic mail	X.435, MIME
	Point to point	FTP, TELNET
	World Wide Web	HTTP
Physical layer	Dial-up lines, Internet, I-way	

Figure 9.1 Layered architecture of EDI

EDI Semantic Layer:

- Describes the business application
- Procurement example

– Requests for quotes

– Price quotes

– Purchase orders

– Acknowledgments

– Invoices

• Specific to company & software used

Standard Translation

- ✓ Specifies business form structure so that information can be exchanged
- ✓ Two competing standards
  - American National Standards Institute(ANSI)X12
  - EDIFACT developed by UN/ECE, Working Party for the Facilitation of International Trade Procedures

E D I Transport Layer

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

Physical network infrastructure layer

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

EDI in Action

The fig shows the information flow when paper documents are shuffled between organizations via the mailroom.

- ✓ When the buyer sends a purchase order, then relevant data extracted & recorded on a hard copy.
- ✓ This hard copy is forwarded to several steps, at last manually entered into system by the data entry operators

- ✓ This process is somewhat overhead in labor costs & time delays.

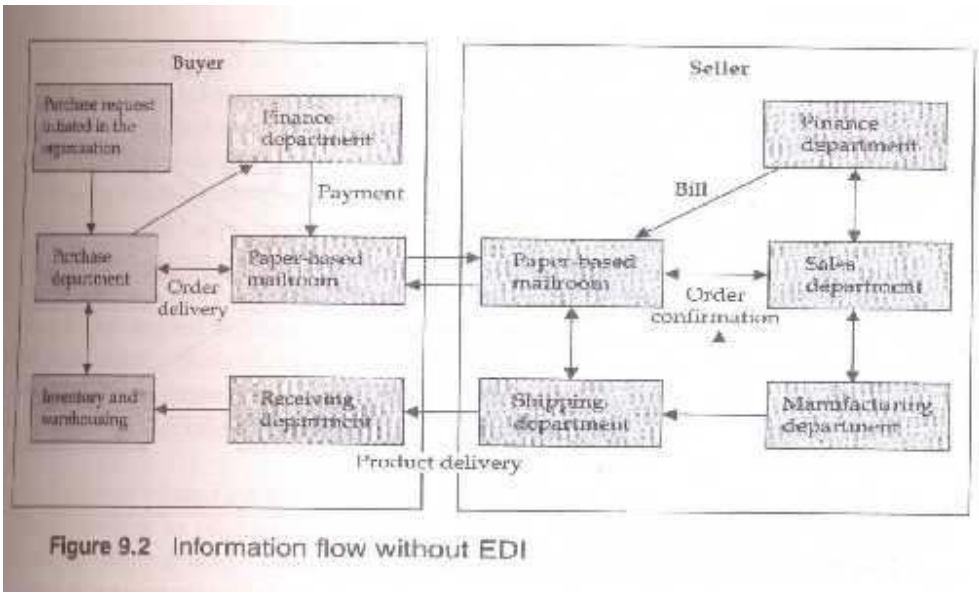


Figure 9.2 Information flow without EDI

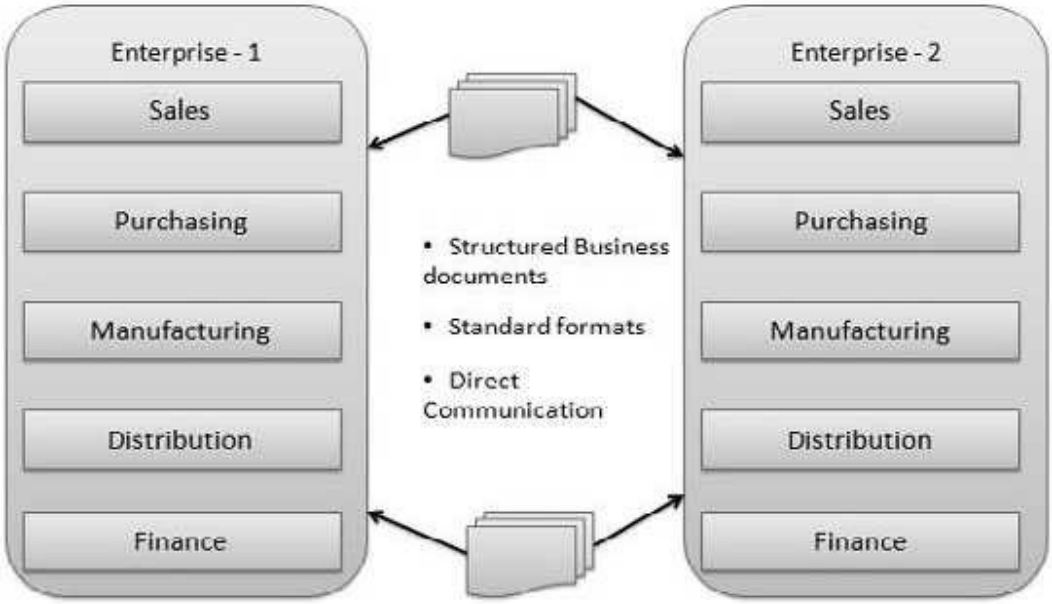
Information flow with EDI are as follows:

- ✓ Buyer sends purchase order to seller computer.
- ✓ Seller sends purchase order confirmation to buyer.
- ✓ Seller sends booking request to transport company.
- ✓ Transport company sends booking confirmation to seller.
- ✓ Seller sends advance ship notice to buyer.
- ✓ Transport company sends status to seller.
- ✓ Buyer sends Receipt advice to seller.
- ✓ Seller sends invoice to buyer.
- ✓ Buyer sends payment to seller.

EDI as a fast, inexpensive & safe method

8. Explain detail in EDI documents

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



EDI Documents

Following are the few important documents used in EDI:

- ✓ Invoices
- ✓ Purchase orders
- ✓ Shipping Requests
- ✓ Acknowledgements
- ✓ Business Correspondence letters
- ✓ Financial information letters

Steps in an EDI System

Following are the steps followed in an EDI system.

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

Advantages of an EDI System

- ✓ **Reduction in data entry errors** - Chances of errors are much less while using a computer for data entry.
- ✓ **Shorter processing life cycle** - Orders can be processed as soon as they are entered into the system. It reduces the processing time of the transfer documents.
- ✓ **Electronic form of data** - It is quite easy to transfer or share the data, as it is present in electronic format.
- ✓ **Reduction in paperwork** - As a lot of paper documents are replaced with electronic documents, there is a huge reduction in paperwork.
- ✓ **Cost Effective** - As time is saved and orders are processed very effectively, EDI proves to be highly cost effective.
- ✓ **Standard means of communication** - EDI enforces standards on the content of data and its format which leads to clearer communication.

9. **List out the different types of buyers.**

Consumers can be categorized into three types

- Impulsive buyers
- Patient buyers
- Analytical buyers

1.Impulsive buyers: These buyers purchase the product quickly.

2.Patient buyers: who purchase products after making some analysis or comparision.

3.Analytical buyers: who do substantial research before making the decision to purchase product or services.

10. **What is WWW? Explain(APR/MAY 2013)**
    - ✓ The World Wide Web consists of information organized into **web pages containing text and graphic image.**
    - ✓ It contains **hypertext links or highlighted** keywords and images that lead to related information.

- ✓ A collection of linked web pages that has a common theme or focus is called a **website**.
- ✓ The main page that all of the pages on a particular web site are organized around and link back to is called the **site home page.**

Web page

- ✓ A web page is a **single unit of information**,often called a document that is available via the World Wide Web.
- ✓ A web page can be longer than one computer screen and can use more than one **piece of paper** when it is printed out.
- ✓ A webpage is created using HTML.It consists of standardized **codes or tags ,**that are used to define the structure of information on a web page.
- ✓ These codes enables web pages to have many features including bold **text,italic,headings,paragraph** break and numbered or bulleted lists.

PART – C QUESTIONS

1. **Write an essay about security and the web. (APR/MAY 2015)**

Today, firewalls are sold by many vendors and protect tens of thousands of sites. The products are a far cry from the first-generation firewalls, now including fancy graphical user interfaces, intrusion detection systems, and various forms of tamper-proof software. To operate, a firewall sits between the protected network and all external access points. To work effectively, firewalls have to guard all access points into the network's perimeter; otherwise an attacker can simply go around the firewall and attack an undefended connection.

The simple days of the firewalls ended when the Web exploded. Suddenly, instead of handling only a few simple services, firewalls now must be connected with complex data and protocols. Today's firewalls have to handle multimedia traffic, attached downloadable programs (applets) and a host of other protocols plugged into Web browsers. This development has produced a basis conflict, the firewall is in the way of

the things users want to do. A second problem has arisen as many sites want to host Web servers: Does the Web server go inside or outside of the firewall? Firewalls are both a blessing and a curse. Presumably, they help deflect attacks; but they also complicate users' lives, make a Web Server Administration job a bit harder, rob network performance, add an extra point of failure, cost money, and make networks more complex to manage.

Firewall technologies, like all other Internet technologies, are rapidly changing. There are two main types of firewalls, plus many variations. The main types of firewalls are proxy and network-layer. The idea of a proxy firewall is simple: Rather than have users log into a gateway host and then access the Internet from there, give them a set of restricted programs running on the gateway host and let them talk to those programs, which act as proxies on behalf of the user. The user never has an account or the need to login on the firewall itself, and he or she can interact only with a tightly controlled restricted environment created by the firewall's administrator.

This approach greatly enhances the security of the firewall itself because it means that users do not have accounts or shell access to the operating system. Most UNIX bugs require that the attacker have a login on the system to exploit them. By throwing the users off the firewall, it becomes just a dedicated platform that does nothing except support a small set of proxies, it is no longer a general-purpose computing environment. The proxies, in turn, are carefully designed to be reliable and secure because they are the only real point of the system against which an attack can be launched.

Proxy firewalls have evolved to the point where today they support a wide range of services andrun on a number of different UNIX and Windows platforms. Many security experts believe that proxy firewalls are more secure than other types of firewalls, largely because the first proxy firewalls were able to apply additional control on to the data traversing the proxy. The real reason for proxy firewalls was their ease of implementation, not their security properties. For security, it does not really matter where in the processing of data the security check is made; what's more important is that it is made at all. Because they do not allow any direct communication between the protected

network and outside world, proxy firewalls inherently provide network address translation. Whenever an outside site gets a connection from the firewall's proxy address, it in turn hides and translates the addresses of systems behind the firewall.

Prior to the invention of firewalls, routers were often pressed into service to provide security and network isolation. Many sites connecting to the Internet in the early days relied on ordinary routers to filter the types of traffic allowed into or out of the network. Routers operate on each packet as an unique event unrelated to previous packets, filtered on IP source, IP destination, IP port number, and other basic data contained in the packet header. Filtering does not constitute of a firewall because it does not have quite enough detailed control over data flow to permit building highly secure connections. The biggest problem with using filtering routers for security is the FTP protocol, which, as part of its specification, makes a callback connection in which the remote system initiates a connection to the client, over which data is transmitted.

Cryptography is at the heart of computer and network security. The important cryptographic functions are encryption, decryption, one-way hashing, and digital signatures. Ciphers are divided into two categories, symmetric and asymmetric, or public-key systems. Symmetric ciphers are functions where the same key is used for encryption and decryption. Public-key systems can be used for encryption, but they are also useful for key agreement and digital signatures. Key-agreement protocols enable two parties to compute a secret key, even in the face of an eavesdropper.

Symmetric ciphers are the most efficient way to encrypt data so that its confidentiality and integrity are preserved. That is, the data remains secret to those who do not posses the secret key, and modifications to the cipher text can be detected during decryption. Two of the most popular symmetric ciphers are the Data Encryption Standard (DES) and the International Data Encryption Algorithm (IDEA). The DES algorithm operates on blocks of 64 bits at a time using a key length of 56 bits. The 64 bits are permuted according to the value of the key, and so the encryption with two keys that differ in one bit produce two completely different cipher texts. The most popular mode of DES is

called Cipher Block Chaining (CBC) mode, where output from previous block are mixed with the plaintext of each block. The first block is mixed with the plaintext of each block. The block uses a special value called the Initialization Vector.

2. Describe the EDI application in business. (NOV/DEC 2014).

EDI Applications in Business

Four different scenarios in industries that use EDI extensively:

1. International or cross-border trade
2. Electronic funds transfer
3. Health care EDI for insurance claims processing
4. Manufacturing & retail procurement
5. International or cross-border trade

- ✓ EDI has always been very closely linked with international trade.
- ✓ Trade efficiency, which allows faster, simpler, broader & less costly transactions.

Role of EDI in international trade

- ✓ EDI facilitates the smooth flow of information.
- ✓ It reduces paper work.
- ✓ EDI benefits for international trade are

1. Reduced transaction expenditures
2. Quicker movement of imported & exported goods
3. Improved customer service through "track & trace" programs
4. Faster customs clearance & reduced opportunities for corruption, a huge problem in trade

2. Interbank Electronic Funds Transfer (EFT)

- ✓ EFTS is credit transfers between banks where funds flow directly from the payer's bank to the payee's bank.

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

Automated Clearinghouse (ACH) Transfers

- ✓ ACH transfers are used to process high volumes of relatively small-dollar payments for settlement in one or two business days
- ✓ It provides services: preauthorized debits, such as repetitive bill payments; & consumerinitiated payments.

3. Health care EDI for insurance EDI

- ✓ Providing good & affordable health care is a universal problem
- ✓ EDI is becoming a permanent fixture in both insurance & health care industries as medical provider, patients, & payers
- ✓ Electronic claim processing is quick & reduces the administrative costs of health care.
- ✓ Using EDI software, service providers prepare the forms & submit claims via communication lines to the value-added network service provider
- ✓ The company then edits sorts & distributes forms to the payer. If necessary, the insurance company can electronically route transactions to a third-party for price evaluation
- ✓ Claims submission also receives reports regarding claim status & request for additional

4. Manufacturing & retail procurement using EDI

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

Just-In-Time & EDI

- ✓ Companies using JIT & EDI calculates how many parts are needed each day based on the production schedule & electronically transmit orders.
- ✓ Delivery has to be responsive, or it will cost too much in money & time.
- ✓ Getting data to suppliers quickly

- ✓ A major benefit of JIT & EDI is a streamlined cash flow.

Quick Response & EDI

- ✓ For the customer, QR means better service & availability of a wider range of products
- ✓ For the retailer & supplier, QR may mean survival in a competitive marketplace
- ✓ Much focus of QR is in reduction of lead times using event-driven EDI.
- ✓ In QR, EDI documents include purchase orders, shipping notices, invoices, inventory position, catalogs, & order status

3. Write an essay about consumer-oriented applications. (APR/MAY 2014).

- ✓ Consumer applications such as on-line stores and electronic shopping malls are burgeoning but access is still cumbersome and basic issues need to be resolved.
- ✓ Customers can browse (net-surf) at their PCs, traveling through electronic shops viewing products, reading descriptions, and sometimes trying samples.
- ✓ For instance, if customers are interested in buying CD-ROMs with racy pictures, they can download sample pictures before purchasing. However, these early systems are not consumer friendly or well integrated.
- ✓ Consumers should be able to execute a transaction by clicking on the BUY button to authorize payment, and the on-line store's bank account would then automatically receive it from the customer's preferred payment mode (credit, debit or check). Security of online payments remains a major barrier to this feature.
- ✓ Customers could pay by credit card, by transmitting the necessary data via modem, but intercepting messages on the Internet is easy for a smart hacker, so sending a credit card number in an unscrambled message is inviting trouble.

The following business issues must be addressed before consumer-oriented e-commerce can become widespread, including :

Establishment of standard business processes for buying and selling products and services in electronic markets.

Development of widespread and easy-to-use implementations of mercantile protocols for

order-taking, online payment, and service delivery similar to those found in retail/credit card based transactions.

Development of transport and privacy methods that will allow parties that have no reason to trust one another to carry on secure commercial exchanges.

CONSUMER-ORIENTED APPLICATIONS

The wide range of applications for the consumer marketplace can be broadly classified into entertainment, financial service, information, essential services, and education and training as

Consumer Life-Style Needs	**Complementary Multimedia Services**
Entertainment	Movies on demand, video cataloging, interactive. ads, multiuser games, on-line discussions
Financial services and information	Home banking, financial services, financial news
Essential services	Home shopping, electronic catalogs, telemedicine, remote diagnostics
Education & training	interactive education, multiuser games, video

The rule that states how consumer-oriented electronic commerce has emerged is based on the feasibility of one of the following methods of information transfer,

1) **Physical Transfer of Information**

2) **Digital Transfer of Information**

<u>The factors that will decide which method is used are,</u>

<u>1.Cost</u> - The costs of both the transmission methods are compared and a method with less cost is selected for transmitting information.

<u>2.Speed</u> - The next is determining the feasibility. It is to compare the speeds of both the methods and a method with more speed a chosen.

The four types of applications that illustrate the operational rule of evolution in very different areas :

1. Personal finance and home banking management
2. Home shopping
3. Home entertainment

4. Micro transactions of Information

4. How encryption is ensured in credit cards? Discuss. (NOV/DEC 2013).

The Integrity of the Information

Since the accident data entry errors or fraud, the information could lead to trade all the difference; In addition, **Data transmission of information loss, duplication of information** or information that would lead to differences in the order of transmission of information the different trade sectors. Trade sectors will affect the integrity of the information to the parties to the trade transactions and business strategies.

The Validity of Information

E-commerce will have a direct bearing on the validity of the information to individuals, corporations or the country's economic interests and reputation. The validity of the **transaction price, period, and the number of hours as part of the agreement** is particularly important. Information recipient can confirm the data received is the primary side. The primary side can confirm that only the designated recipient can receive. C.

The Non-repudiation of Information

In a paperless e-commerce system, the trade through In a **paperless e-commerce system, the trade through a handwritten signature or seal** has been impossible to identify the parties. Accordingly, **the transfer of information** in the course of transactions involved in the transaction for individuals, corporations or to provide a reliable **identification**, made in the original data can not be **denied sending**, receiving data at the receiving side can deny. D.

The Authenticity of the Transaction Status

Internet transactions are **geographically distant, mutual understanding**, to make the **transaction a success**, we must trust each other, recognize each other is true, Businessmen have to consider the customer is a cheater, is not a gimmick shop for clients to consider whether there is credibility.

The Reliability of the System E-commerce System

computer system, its reliability is : to prevent computer failure, procedural errors, transmission errors. **Hardware failures, software errors, computer viruses and**

natural disasters resulting from the potential threat, and control and prevention. Ensure system security and reliability

5. **How to depict www as e-com architecture? Explain. (APRIL 2011).**
   - ✓ A high-level overview that supports e-commerce on the Internet. The basic idea is that your potential customers go to your world-wide web (WWW) page, **find a product or service that they wish to purchase** from you, and then purchase it while they are at the web page. There are three components to this architecture: the Internet, a firewall, and your organization.
   - ✓ The Internet is where you will **interact electronically with your customers**, your firewall will provide you with reasonable protection against people who wish you harm, and your organization's systems will process the business transactions generated on the WWW by your customers.
   - ✓ Later in this white paper we will discuss a development approach that uses **Java and Smalltalk to support this architecture.**
   - ✓ To understand why we need to change our systems infrastructure we must first put the requirements of **electronic commerce into perspective**. We're talking about the WORLD wide web, and that means international commerce.
   - ✓ Doing business internationally means handling **multiple languages, multiple currencies, multiple cultures, multiple tax laws,** and multiple shipping/customs rules. It's a whole new ball game folks, and we need to step up to the plate right now.

Electronic cash (e-cash) – A digital currency used on the Internet to buy and sell products.

Electronic commerce (e-commerce) – Any form of commerce in which the buyer of a product or service **uses a computer to interact** with the computer system of the seller of that product or service.

Internet – A collection of interconnected computers that people can log onto to **share information, to communicate, to be entertained,** and to perform electronic commerce transactions.

Intranet – A network internal to your organization that is built either **partially or completely from Internet-based technology.**

World Wide Web (WWW) – A component of the Internet that provides users with the ability to move from computer system to computer system by following predefined links among those systems.

E-COMMERCE
Unit – V (Intra-Organizational E-Commerce)
Question & Answer

Syllabus:

UNIT V: Intraorganizational Electronic Commerce supply chain management. Electronic Commerce catalogs, Document Management and digital libraries.

PART – A QUESTIONS

1. **Give the three main sectors of online information service market. (APR/MAY 2016)**

The **tertiary sector** or **service sector** is the third of the three economic sectors of the three-sector theory. The others are the secondary sector (approximately the same as manufacturing), and the primary sector (raw materials).

The service sector consists of the parts of the economy, i.e. activities where people offer their knowledge and time to improve productivity, performance, potential, and sustainability, which is termed as affective labor.

Example:

- Entertainment
- Government
- Telecommunication
- Information technology

2. **Define the term collaborator. (APR/MAY 2016)**

- A person who works jointly on an activity or project; an associate.
- To work together, especially in a joint intellectual effort.
- To cooperate treasonably, as with an enemy occupation force in one's country.

3. **What is transaction? (NOV/DEC 2015)**

A transaction usually means a sequence of information exchange and related work (such as database updating) that is treated as a unit for the purposes of satisfying a request and for ensuring database integrity. For a transaction to be completed and

database changes to made permanent, a transaction has to be completed in its entirety. A typical transaction is a catalog merchandise order phoned in by a customer and entered into a computer by a customer representative.

Example: Online purchase, Net banking.

4. **What are the functions of data warehousing? (NOV/DEC 2015)**

- It works as a repository and the data here is held by an organization that endures the facilities to backup data functions. It reduces the cost of storage system and even the backup data at organizational level. Functions involved are:

  - Data consolidations
  - Data cleaning
  - Data integration

5. **List the two issues focused on customization.(APR/MAY 2015)**
   - ✓ Technology is **transforming consumer choices**, which in turn transform the **dynamics off the marketplace** and organizations themselves.
   - ✓ Technology embodies **adaptability, programmability, flexibility** and other qualities so essential for customization.

6. **What is known as work-flow automation? (APR/MAY 2015)**

   A **vision of speeding** up or automating **routine business tasks** has come to be known as work-flow automation.

7. **Define supply chain (NOV 2014,APR/MAY 2014)**

   It is the process of **planning, implementing, and controlling the operations** of the supply chain with the purpose to satisfy customer requirements as efficiently as possible.

8. **State the two types of digital libraries.(APR/MAY 2014)**
   - ✓ Electronic document-based digital libraries.

- ✓ Data-base oriented warehouse.

9. What is Customization? (NOV/DEC 2013)

Technology is **transforming consumer choices**, which in turn transform the **dynamics off the marketplace** and organizations themselves.

10. What are Adhoc documents? (APR/MAY 2013)

Letters, finance reports, manuals are called adhoc documents, which are prepared by managers & professionals.

11. What do you mean by EDIFACT? (APRIL 2011)

EDIFACT is being used for **the international financial EDI** pilot project currently being conducted by SWIFT.

12. Expand MIME. (NOV/DEC 2011)

Multipurpose Internet Mail Extension.

13. What is cross-functional Management?

Cross-functional management (CFM) manages **business processe**s across the **traditional** boundaries of the **functional area**.

14. Define Global market.

The Oxford University press define global marketing as ‘**’marketing’’ on a worldwide** scale reconciling or talking commercial advantage of global operational difference, similarities and opportunities in order to meet global objectives.

15. Write short notes on Vertical and Horizontal organization.

Vertical organization is a hierarchically structured organization where **all management** activities are controlled by a **centralized management staff**.

Horizontal organization is a market which meets a given need of a **wide variety** of **industries**, rather than a specific one.

16. What do you mean by White page?

Analogues to the **telephone white pages**, the electronic white pages provide services from a static listing **of e-mail addresses to directory assistance**.

17. What is Yellow Pages?

The Yellow pages refers to a telephone directory of businesses, categorized according to the **product or services provided.**

18. Define Information Architecture.

Information architecture (IA) is the art of expressing a model or concept of information used in activities that require **explicit details of complex systems**.

19. Define Information System.

Information System (IS) refers to a system of people, data records and activities that **process the data and information in an organization**, and it includes the organization's manual and automated processes.

PART – B QUESTIONS

1. Discuss on the white page through X.500. (APR/MAY 2016)

X.500 is a series of computer networking standards covering electronic directory services. The X.500 series was developed by ITU-T, formerly known as CCITT, and first approved in 1988.

The protocols defined by X.500 include

- **DAP** (Directory Access Protocol)
- **DSP** (Directory System Protocol)

    - **DISP** (Directory Information Shadowing Protocol)
    - **DOP** (Directory Operational Bindings Management Protocol)
- The primary concept of X.500 is that there is a single Directory Information Tree (DIT), a hierarchical organization of entries which are distributed across one or more servers, called Directory System Agents (DSA). An entry consists of a set of attributes, each attribute with one or more values. Each entry has a unique Distinguished Name, formed by combining its Relative Distinguished Name (RDN), one or more attributes of the entry itself, and the RDNs of each of the superior entries up to the root of the DIT. As LDAP implements a very similar data model to that of X.500, there is further description of the data model in the article on LDAP.
- X.520 and X.521 together provide a definition of a set of attributes and object classes to be used for representing people and organizations as entries in the DIT. They are one of the most widely deployed white pages schema.
- X.509, the portion of the standard providing for an authentication framework, is now also widely used outside of the X.500 directory protocols. It specifies a standard format for public-key certificates.

- Providing an X.500 directory allows an organization to make itself and selected members known on the Internet. Two of the largest directory service providers are InterNIC, the organization that supervises domain name registration in the U.S., and ESnet, which maintains X.500 data for all the U.S. national laboratories. ESNet and similar providers also provide access to looking up names in the global directory, using a number of different user interfaces including designated Web sites, whois, and finger. These organizations also provide assistance to organizations that are creating their own Directory Information Tree (DIT).

- In X.500, each local directory is called a Directory System Agent (DSA). A DSA can represent one organization or a group of organizations. The DSAs are interconnected from the Directory Information Tree (DIT). The user interface program for access to one or more DSAs is a Directory User Agent (DUA). DUAs include whois, finger, and

programs that offer a graphical user interface. X.500 is implemented as part of the Distributed Computing Environment (DCE) in its Global Directory Service (GDS). The University of Michigan is one of a number of universities that use X.500 as a way to route e-mail as well as to provide name lookup, using the Lightweight Directory Access Protocol (LDAP).

2. **Write short notes on changing roles of institutions. (APR/MAY 2016)**
   - People may deliberately create individual, formal organizations commonly identified as "institutions"—but the development and function of institutions in society in general may be regarded as an instance of emergence. That is, institutions arise, develop and function in a pattern of social self-organization beyond conscious intentions of the individuals involved.
   - Institution is an established way of behaving or established forms of procedure. It consists of all the structural components of a society through which the main concerns and activities are organized and social needs such as those for order, belief and reproduction are met.
   - The term institution was used by Parsons and Spencer in these sense.These sociologists considered institutions as central to the notion of society as an organism or functioning system. There are five primary social institutions= Family, economy, religion, education and state.
   - The issue of institutional development has come to prominence during the last decade or so. During this period, even the IMF and the World Bank, which used to treat institutions as mere ‘details’, have come to emphasize the role of institutions in economic development. However, there are still some important knowledge gaps that need to be filled before we can say that we have a good grip on the issue of institutions and economic development, both theoretically and at the policy level. This book is an attempt to fill these gaps.

- Recognizing the complexity of the issues involved, this book draws together contributions from scholars in economics, history, political science, sociology, public administration and business administration.

3. Write short notes on agile manufacturing. (NOV/DEC 2015)

Agile manufacturing represents a very interesting approach to developing a competitive advantage in today's fast-moving marketplace. It places an extremely strong focus on rapid response to the customer – turning speed and agility into a key competitive advantage. An agile company is in a much better position to take advantage of short windows of opportunity and fast changes in customer demand.

Why is agile manufacturing an effective strategy?

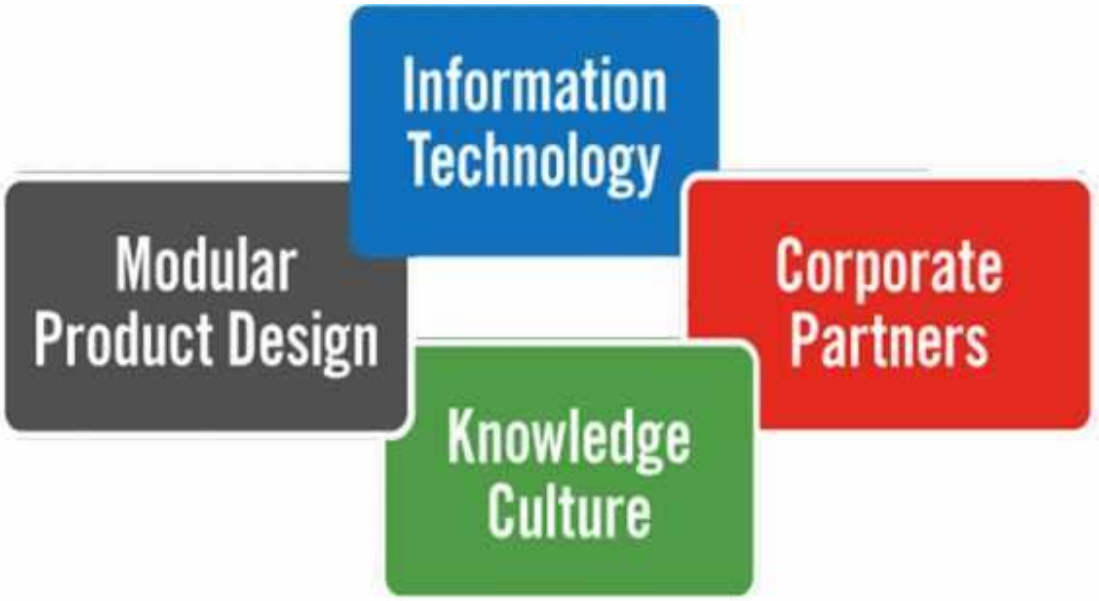
- Consumers love instant gratification. They are increasingly getting used to it and they are often willing to pay for it. For example, have you ever ordered a product with overnight shipping…waiting in eager anticipation?
- Consumers love choice. They prefer to get a product exactly as they want it…without compromise.
- Consumers are fickle. Their interests shift and move in unpredictable ways.

Agile is effective because it directly addresses these issues. It acknowledges the realities of the modern marketplace and transforms them into a competitive advantage.

Agile is of particular value for manufacturers in countries with large, well-developed local markets and high labor costs (e.g. the United States). It leverages proximity to the market by delivering products with an unprecedented level of speed and personalization, which simply cannot be matched by offshore competitors. It turns local manufacturing into a competitive advantage.

There are four key elements for agile manufacturing:

- Modular Product Design (designing products in a modular fashion that enables them to serve as platforms for fast and easy variation)
- Information Technology (automating the rapid dissemination of information throughout the company to enable lightning fast response to orders)
- Corporate Partners (creating virtual short-term alliances with other companies that enable improved time-to-market for selected product segments)
- Knowledge Culture (investing in employee training to achieve a culture that supports rapid change and ongoing adaptation)

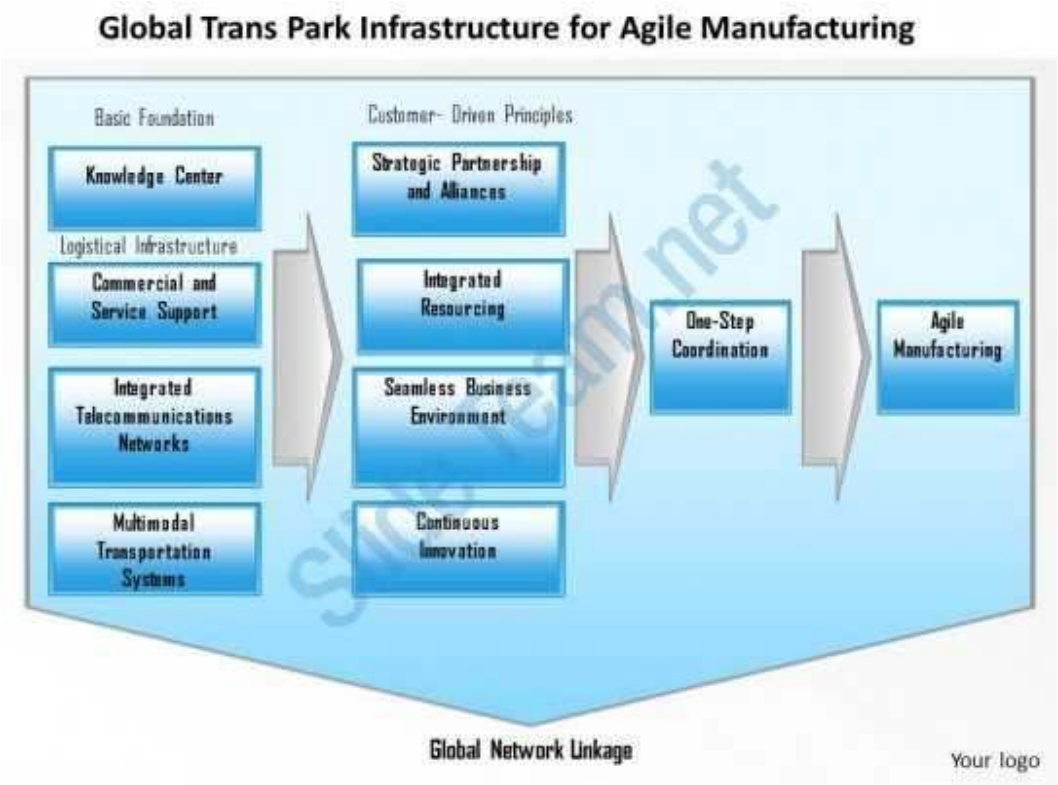


Agile manufacturing builds on lean with four key elements: Modular Product Design, Information Technology, Corporate Partners, and a Knowledge Culture.

RELATIONSHIP TO LEAN

Lean manufacturing is generally considered to be a precursor to agile. Many lean practices are also enablers for agile manufacturing. For example, manufacturing in small batches (or even better – manufacturing with one-piece flow), fast changeovers, and a culture of continuous improvement are all foundations that pave the road to agile manufacturing.

It is quite interesting to see how lean manufacturing techniques and tools can provide benefits in areas that extend beyond the core lean objective (improving productivity and profitability by relentlessly eliminating waste). Agile manufacturing is one such area.



4. **Discuss about electronic yellow pages in detail.(APR/MAY 2015.APRIL 2011)**
   - ✓ The term ***Yellow Pages*** refers to a telephone directory of businesses, categorized according to the product or service provided.
   - ✓ The traditional term ***Yellow Pages*** is now also applied to **online directories of businesses.**
   - ✓ To avoid the increasing cost of yellow paper, the yellow background of the pages is **currently printed on white paper using ink**. Yellow paper is no longer used.
   - ✓ The name and concept of "Yellow Pages" came about in 1883, when a printer in Cheyenne, Wyoming working on a **regular telephone directory** ran out of white paper and used yellow paper instead.
   - ✓ In 1886 Reuben H.Donnelley created the first official yellow pages directory, inventing an industry.

- ✓ Today, the expression *Yellow Pages* is used globally, in both English-speaking and non-English speaking countries.
- ✓ In the US, it refers to the category, while in some other countries it is a registered name and therefore a proper noun.

5. Compare and contrast vertical verses horizontal organizational structure. (APR/MAY 2015)

Vertical Organization:

- ✓ Hierarchically structured organization where all management activities are controlled by a centralized management staff.

Vertical organization has two problems:

- ✓ First, it creates boundaries that discourage **employees in different departments** from **interacting** with one another.
- ✓ Second, **departmental goals** are typically set in a way that could cause friction among departments.
- ✓ A **vertical market** is a group of similar businesses and customers which engage in trade based on specific and specialized needs.

  An example of this sort of market is the market **for point-of-sale terminals**, which are often designed specifically for similar customers and are not available for purchase to the general public.
- ✓ A vertical market is a market which meets the needs of a particular industry: for **example,** a piece of equipment used only by semiconductor manufacturers. It is also known as a niche market.
- ✓ Vertical market **software is software aimed at addressing the needs of any given business** within a discernible vertical market.

Horizontal organization:

- ✓ A **horizontal market** is a market which meets a given need of a wide variety of industries, rather than a specific one.

Examples

- ✓ In technology, horizontal markets consist of customers that share a common need that **exists in many or all industries.**

  For example, customers that need to purchase computer security services or software exist in such varied industries as finance, healthcare, government, etc.
- ✓ Horizontal marketing **participants often attempt to meet enough of the different needs** of vertical markets to gain a presence in the vertical market.
- ✓ An example could be software that manages services in hotels - amenities solutions.

Vertical organization Comparison with horizontal organization:

- ✓ A vertical market is a market which meets the needs of a particular industry: for example, **a piece of equipment** used only by semiconductor manufacturers.
- ✓ A horizontal market is a market which meets a given **need of a wide**.

6. Explain the digital document management issues and concerns.(NOV 2014)

- ✓ **Ad hoc documents:** Letters, finance reports, manuals are called ad hoc documents, which are prepared by managers &professionals.
- ✓ **Process-specific documents**: invoices and purchase orders which are created, constructed and distributed by support personnel. these are form based.
- ✓ **Knowledge-oriented documents**: these are technical documents, catalogs of product information, and design documents.

7. Elucidate the characteristics of supply chain management in electronic commerce. (APR/MAY 2014,2013)

Consists of all parties involved, directly or indirectly in fulfilling a customer request.

SUPPLY CHAIN MANAGEMENT (SCM)

Supply chain management (SCM) is the management of a network of interconnected business involved in the ultimate provision of product and service packages required by end customers.

- ✓ Supply Chain Management spans all movement and **storage of raw materials**, **work-in process inventory, and finished goods from point-of-origin to point-of-consumption**.
- ✓ Supply Chain Management can also refer to supply chain management software which is **tools or modules** used in executing supply chain transaction managing supplier relationships and controlling associated business processes.

The Management Components of SCM

- ✓ The literature on business process **re-engineering, buyer-supplier relationships**, and SCM suggests various possible components that must receive managerial attention when managing supply relationships.
- ✓ Lambert and Cooper (2000) identified the following components which are:
  - Planning and control
  - Work structure
  - Organization structure
  - Product flow facility structure
  - Information flow facility structures
  - Management methods
  - Power and leadership structure
  - Risk and reward structure
  - Culture and attitude

Reverse Supply Chain

Reverse logistics is the process of **planning**, implementing and **controlling** the **efficient, effective** inbound flow and **storage of secondary goods** and related information opposite to the traditional supply chain direction for the purpose of recovering.

8. Illustrate the Structure of electronic commerce catalogues. (APR/MAY 2014)

A directory performs an essential support function that guides customers in a maze of options by enabling the organizations of the information space.

Directories are of two types:

1. The white pages

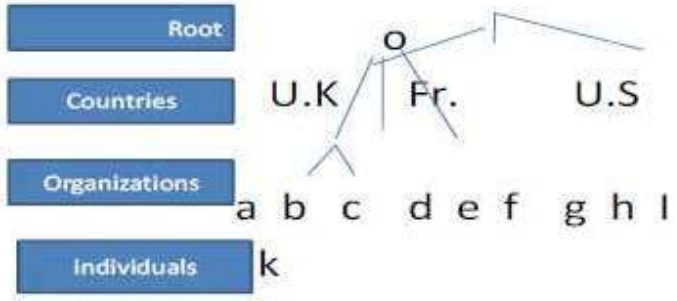
2. Yellow pages

The white pages are used to people or institutions and yellow pages are used to consumers and organizations.

Electronic white pages:

- ✓ Analogues to the **telephone white pages**, the electronic white pages provide services from **a static listing of e-mail addresses to directory assistance.**
- ✓ White pages directories, also found within organizations, are **integral to work efficiency.**
- ✓ The problems facing organizations are similar to the problems facing individuals.
- ✓ A white pages schema is a data model, specifically a logical schema, for organizing the data contained in entries in a **directory service, database, or application, such as an address book.**
- ✓ In a white pages directory, each entry typically represents an individual person that makes the use of network resources, such as by receiving email or having an **account to log into a system.**
- ✓ In some environments, the schema may also include the representation of **organizational divisions, roles, groups, and devices**.
- ✓ The term is derived from the white pages, the listing of individuals in a telephone directory, typically sorted by the individual's home location (e.g. city) and then by their names.

- ➢ **Single global name space**: x.500 provides single name space to users.
- ➢ **Structured information framework**: X.500 defines the information framework used in the directory, allowing local extensions.
- ➢ **Standards-based directory**: X.500 can be used to build directory applications that requires distributed information.



WHITE PAGES DIRECTORY INFORMATION TREE

ELECTRONIC YELLOW PAGES:

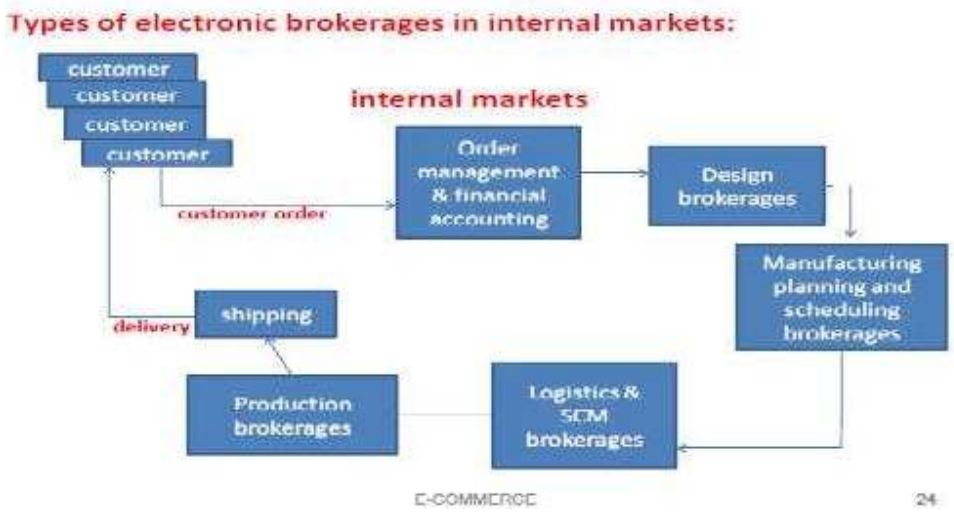
- ✓ The term ***Yellow Pages*** refers to a **telephone directory of businesses**, categorized according to the product or service provided.
- ✓ The traditional term ***Yellow Pages*** is now also applied to online directories of businesses.
- ✓ To avoid the increasing cost of yellow paper, the yellow background of the pages is currently printed on white paper using ink. Yellow paper is no longer used. The name and concept of "Yellow Pages" came about in 1883, when a printer in Cheyenne, Wyoming working on a regular telephone directory ran out of white paper and used yellow paper instead.
- ✓ In 1886 Reuben H.Donnelley created the first official yellow pages **directory, inventing an industry.**
- ✓ Today, the expression *Yellow Pages* is used globally, in both English-speaking and non-English speaking countries.
- ✓ In the US, it refers to the category, while in some other countries it is a registered name and therefore a proper noun.

9. What are all the types of electronic brokerage in internal markets? Discuss (APR/MAY 2013).

The main goal of electronic brokerages organization is to increase the efficiency of the

internal marketplace.

- Internal markets are beginning to appear not only in corporations but even in non **business institutions like the government**.
- They are created **inside organizations, allowing firms, suppliers, government** agencies to meet the new challenges of the fast-changing environment.

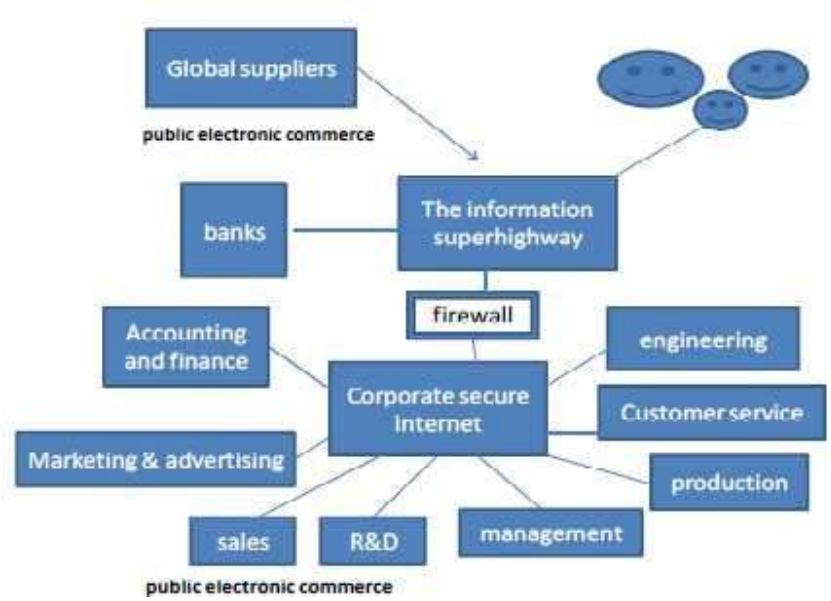


10. Write short notes on Intra-organizational e-commerce. (NOV/DEC 2011)

Internal commerce is the application of electronic commerce to processes or operations.

- Specifically, we define internal commerce as using methods and pertinent technologies for supporting internal business processes between individuals, departments, and collaborating organizations. It is of two types
  1. **Private commerce**
  2. **Public commerce**
     - ✓ In a general sense, the term **Information System** (IS) refers to a system of **people, data records and activities that process** the data and information in an organization, and it includes the organization's manual and automated processes.
     - ✓ In a narrow sense, the term *information system* (or computer-based information system) refers to the specific application software that is used to **store data records** in a computer system and automates some of the information-processing activities of the organization.

- ✓ These forces are commanding a rethinking of the importance of the **networks-computers and communications** and their role in the better utilization of corporate information in operational and analytical decision making.



Information architecture (**IA**) is the art of expressing a model or concept of information used in activities that require explicit details of complex systems.

- ✓ Among these activities are **library systems, content Management Systems, web development, user interactions, data base development, programming, technical writing, enterprise architecture, and critical system software design.**
- ✓ Most definitions have common qualities: a structural design of shared environments, methods of organizing and labelling **websites, intranets, and online** communities, and ways of bringing the principles of design and architecture to the digital landscape.

PART – C QUESTIONS

1. **Explain the four types of digital documents in detail. (APR/MAY 2015, APRIL 2011).**

Four types of digital documents are:

- ✓ **Structuring applications** around a document interface.
- ✓ Structuring interlinked **textual & multimedia Documents**.
- ✓ **Structuring and encoding information** using document-encoding standards
- ✓ **Scanning documents** for storage and faxing.

Document Imaging

- ✓ **Document imaging** emulates microfiche and **microfilm**.
- ✓ An **imaging system** passes appear **document** through a **scanne**r that renders it digital and then stores the digital data as a bit-mapped image of document.
- ✓ The problem with the imaging approach is that the output contains only images not text.

The following imaging standards are prominently used:

- ✓ **TIFF** (tag image file format): format for interchange of bit-mapped images.
- ✓ **ITU-TSS** (international telecommunication union-telecommunication standardization.
- ✓ sector) Group IV T.6 facsimile: this standard is used for compression and exchange of bit-mapped files.

Structured Documents

- ✓ A structured document provides **clear description** of document content.
- ✓ Structured documents apply **data-base structuring** capabilities to individual documents and **document collections.**

Standard for structured documents are:

SGML (Standard Generalization Markup Language):

- ✓ It is an ISO standard for interchange & multi formatting description of text document in

terms of logical structure.

ODA (Office Document Architecture):

- ✓ It is an ANSI & ISO standard for interchange of compound office documents.ODA specifies both content & format.

CDA (Compound Document Architecture):

- ✓ It defines set of rules for content and format .It defines services for compound documents.

RTF (Rich –Text Format):

- ✓ It is developed by Microsoft for interchanging of desk top documents.

Hyper Text Documents

- ✓ Hyper text is a way of making document-based information more mobile.

Reasons for mobility of information are:

- ✓ Information in enterprises is seldom located on server but is distributed throughout the organization.
- ✓ Accessing & retrieving large monolithic document is time consuming.
- ✓ Reuse of document for composing new documents is difficult task.
- ✓ In this relationships between documents can be represented through hypermedia links **i.e. hyperlinks.**

Standards of Hypermedia:

- ✓ HyTime: it adds time based relationships like synchronization, it is extension of SGML.
- ✓ HTML: developed by WWW to support distributed hypermedia.
- ✓ MHEG(multimedia /hypermedia encoding/exporting Group):standard for presenting objects in multimedia

Active documents

- ✓ Active document represents what is known as document oriented computing.
- ✓ Active document provide an interactive interface between documents.
- ✓ Active documents are especially powerful because they combine composition of information with the distributed nature of information.

Ex: spreadsheet, word-processing.

2. **Expound the concept behind electronic commerce catalogs or directories.(NOV/DEC 2014).**

Electronic catalogs and directories:

- ✓ Information organizing and browsing is accomplished using directories or catalogs‘
- ✓ Organizing refers to how to interrelate information, by placing it in some hierarchy.
- ✓ Maintaining large amount of data is difficult.

Information filtering:

Goal of information filtering if selecting of data that is relevant, manageable and understandable.

Filters are of two types

1. Local filter
2. Remote filter

Local filters: **local filters work on incoming data** to a PC, such as news feeds.

Remote filters: remote filters are often software agents that work on behalf of the user and roam around the **network from one data base to another.**

3. **Compare and contrast push-based supply chain vs pull-based supply chain. (APR/MAY 2014).**

Two different advertising paradigms are emerging in the on-line world, they are:

1. Active or push-based advertising
2. Passive or pull-based advertising

Active or push-based advertising:

Active or push-based advertising is of two types they are :

The broadcast model:

- ✓ Broadcasting message provides a means for **reaching a great number of people in short period of times.**

- ✓ It mimics the traditional model, in which customer id exposed to the advertisement during TV programming.
- ✓ It basically uses **direct mail, spot television, cable television**.
- ✓ Text-based broadcast messages also used in advertising in Usenet news groups.

The junk mail model:

- ✓ Disadvantage of the direct mail include relatively high cost per contact.
- ✓ Junk mail is the **just poorly targeted direct mail**.
- ✓ It is most intrusive of all forms of internet advertising, because it is easily implemented using electronic mail.
- ✓ Junk mail creates **unwanted expense** as well as an **annoyance**.

Passive or pull-based advertising

Pull-based advertising provide a feedback loop, company and customers.

- On-line pull-based advertising includes the following:
- Billboards
- Catalogs or yellow pages directories:
- endorsements

Based on the above three we have the fallowing models:

The billboards or www model:

- ✓ Billboard advertising is often used to remind the customer of the advertising messages communicated through other media.
- ✓ The advantage of this model is no customer charges.
- ✓ In this message must be simple, direct.

Catalog and yellow pages directory model:

- ✓ Traditionally, the most visible directory service of advertising is the yellow pages.
- ✓ Catalog model is the least intrusive model but requires active search on the part of customer.
- ✓ Yellow pages are low in cost in terms of production and placement.
- ✓ Disadvantage of yellow page include lack of timeliness and little creative flexibility.

Customer endorsement model:

- ✓ In endorsements people tell their experiences with products and services.
- ✓ These are in question and answer format.

Marketing Research

- ✓ Market research is extremely important for companies in terms of how they allocate their advertising dollars in sales promotions, how they introduce new products, how they target new markets.

Broadly marketing research is divided into three faces:

- Data collection
- Data organization
- Data analysis and sense making

Data collection:

- ✓ Markets mainly relied on **source database** for understanding **consumer behavior**.
- ✓ Source data base mainly comprise of **numeric information**.
- ✓ Delivery of source database services fallows two main patterns.
- ✓ **Data collect and collate data**, making it available by data base producers.
- ✓ Data collect and **collate data**, making it available by central hosts like **CompuServe, American online..etc.**

Data organization:

- ✓ Everyone is collecting data from electronic commerce, but very few are organizing it **effectively for developing a marketing strategy**.

The key abilities in their environment are:

- ✓ Leverage its established **database into customized offerings by audience and markets**.
- ✓ Leverage its established **database in terms of horizontal growth**.

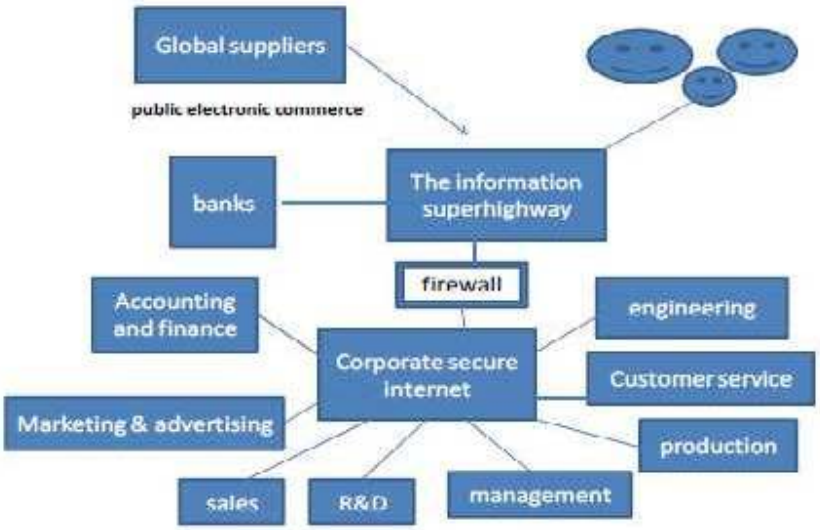
Data analysis and sense making:

- ✓ The ability to **link database to analytic tools** like econometric programs and **forecasting models is called data analysis.**
- ✓ Market research is undergoing major changes; the next generation of source database will definitely include multimedia information.

4. Explain internal information System in detail. (NOV/DEC 2011).

In a general sense, the term Information System (IS) refers to a system of people, data records and activities that process the data and information in an organization, and it includes the organization's manual and automated processes.

- ✓ In a narrow sense, the term *information system* (or computer-based information system) refers to the specific application software that is used to store data records in a computer system and automates some of the information-processing activities of the organization. These forces are commanding a rethinking of the importance of the networks-computers and communications and their role in the better utilization of corporate information in operational and analytical decision making.



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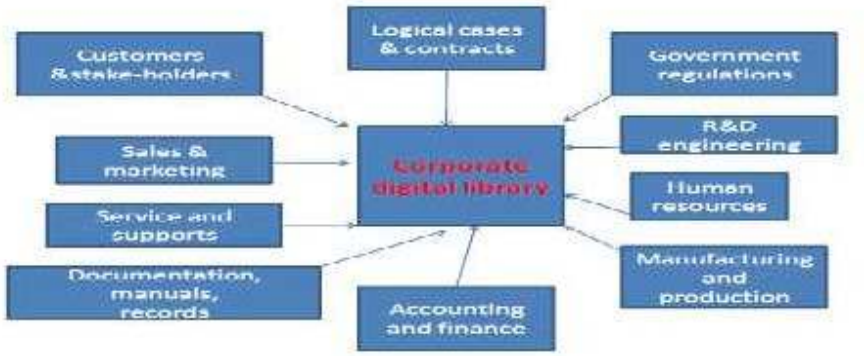
5. Explain detail in documents management and digital library.

This section highlights the role that documents play in today's organization and how business can better meet their customers' needs by improving document management support.



Digital Document Management Issues and Concerns

- **Ad hoc documents:** Letters, finance reports, manuals are called ad hoc documents, which are prepared by managers &professionals.
- **Process-specific documents**: invoices and purchase orders which are created, constructed and distributed by support personnel. these are form based.
- **Knowledge-oriented documents**: these are technical documents, catalogs of product information, and design documents.

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Issues behind Document Infrastructure

Document infrastructure addressed these questions:

- ✓ What is the proper architecture for the corporate digital library?
- ✓ What are appropriate model?
- ✓ What protocols required?
- ✓ What are the best human interfaces?
- ✓ How does one represent and manipulate the information processing activities occurred in the digital library?

Document Constituencies:

- ✓ The emerging document processing & management strategies must address these constituencies.
- ✓ They need system to access distributed repositories& to manipulate them in a number of ways.

Document-oriented processes

Components of Document-oriented processes are:

- ✓ Document creation.
- ✓ Document media conversation (it accept multiple forms of input).
- ✓ Document production and distribution.
- ✓ Document storage and retrievals.

Document-based framework flows:

The following Four activities make up the document-based framework flow:

- ✓ **Document modeling**: it defines the structure and processes the document.
- ✓ **Transformation:** creates modules for capturing and validating.
- ✓ **Synthesizing:** create value-added information from the combination of two or more
- ✓ documents.
- ✓ **Business modeling**: defines the structure and processes of the business environment.