**PART –A**

1. **Define Electronic commerce.**

E-commerce -- electronic commerce or EC -- is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business, business-to-consumer, consumer-to-consumer or consumer-to-business.

1. **Define GIDN.**

Two major technologies underpins the global information network distribution and they are as follows;

**Long Distance Networks – Fiber Optics**

Long distance connectivity is available via cable (coax or fiber) owned by long distance or inter- exchange carriers (IXCs). Experience suggests that fiber optics for international transmission.

**Satellite Networks**

Satellite networks do have accessibility from any spot on the globe, can provide digital broadband service including voice, data and video without the cost of acquiring wire installation.

1. **What are the advantages of E-commerce.**

* Faster buying/selling procedure, as well as easy to find products.
* Buying/selling 24/7.
* More reach to customers, there is no theoretical geographic limitations.
* Low operational costs and better quality of services.
* No need of physical company set-ups.
* Easy to start and manage a business.
* Customers can easily select products from different providers without moving around physically.

1. **Write the network access equipments?**
2. Cable TV Set top boxes
3. Computer based telephony
4. Hub, wiring closets and routers or digital switches.

**5. Internet Advertising**

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

**6. Information filtering**

An **information filtering** system is a system that removes redundant or unwanted**information** from an **information** stream using (semi)automated or computerized methods prior to presentation to a human user. Its main goal is the management of the **information** overload and increment of the semantic signal-to-noise ratio.

**7. Digital video**

Digital video (DV) is video that is captured and stored in a digital format as ones and zeros, rather than a series of still pictures captured in film. Digital, versus analog, signals are used. Information is processed and stored as a sequence of digital data for easy manipulation by computers, but the video is still presented to the viewer through a screen in analog form.

**8. Wireless**

Wireless is an encompassing term that describes numerous communication technologies that rely on a wireless signal to send data rather than using a physical medium (often a wire). In wireless transmission, the medium used is the air, through electromagnetic, radio and microwave signals. The term communication here not only means communication between people but between devices and other technologies as well.

9.**Marketing research**

**Marketing research** is "the process or set of processes that links the producers, customers, and end users to the marketer through information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process.

**10. Catalogue**

List of goods or services on sale with their description and prices published as a printed document, or as an electronic document (e-catalog) on internet or on a diskette, CD, DVD, etc.

**11. Cell relay**

Cell relay is a network technology for data transmission that uses small data packets of a fixed size called cells. Cells are the basic units of data, and are widely used in common networks for communication. Just like frames, which are data packets of variable size, cells travel from one computer to another over a network. Asynchronous transfer mode (ATM) is a particularly popular form of cell relay, and is based on cell units.

**12. VAN**

A VAN (value added network) is a private network provider that focuses on offering network services such as secure email, message encryption and management reporting. Their goal is to facilitate EDI (electronic data interchange) among online companies, providing a convenient way for ecommerce businesses to securely communicate and share data.

**13. Data Communication Protocol**

In computer networks, **communication** occurs between entities in different systems. ... For **communication** to occur, the entities must agree on a **protocol**. A**protocol** is a set of rules that govern **data communications**. A **protocol** defines what is communicated, how it is communicated, and when it is communicated.

**14. Video Conferencing**

Video conferencing refers to conducting a video conference or video teleconference in which two or more sets of hardware and software interact while simultaneously transmitting and receiving video and audio signals from two or more geographic locations.

**15. Internet Terminology**

World Wide Web (WWW): The World Wide Web (“WWW” or simply the “web”) is a collection of electronic documents (called web pages) that are linked together like a spider web. These documents are stored on computers called servers located around the world

**16. Mobile Computing**

Mobile Computing is a technology that allows transmission of data, voice and video via a computer or any other wireless enabled device without having to be connected to a fixed physical link. The main concept involves −

* Mobile communication
* Mobile hardware
* Mobile software

**PART –B**

1. **a) Write the concept of internet terminology.**

Internet is a network of interconnected networks and is designed to operate without a central control. If a portion of the network fails, connection is made through alternative paths available. The architecture of internet is hierarchical in nature. A brief description of the architecture of internet is as follows:

* Client at home or in a LAN network is at the lowest level in hierarchy.
* Local Internet Service Provider (ISP) is at the next higher level.
* An ISP is an organization that has its own computers connected to the

internet and provides facility to individual users to connect to internet

through their computers.

* Local ISP is the local telephone company located in the telephone

switching office.

* The client calls local ISP using a modem.
* Regional ISP is next in the hierarchy. The local ISP is connected to

regional ISP.

* A router is a special hardware system consisting of a processor, memory and an I/O interface used for the purpose of interconnecting networks.
* The regional ISP connects the local ISPs located in various cities

via routers.

* Backbone is at top of the hierarchy.
* Backbone operators are large corporation’s like AT &T which have their own server farms connected to backbone.
* The backbone networks are connected to regional ISPs with a
* large number of routers through high-speed fiber optics.
* Network Access Points (NAP) connects different backbones.

**5. b) Define digital switches, routers and Hubs**

**Routers**-

It transfers or routes the data between networks. They are particularly used in controlling traffic flow by making intelligent routing decisions. It is used in the network layer of ISO model. It is used to connect networks that use different architectures and protocols; they can transfer information packets across multiple networks. It is used by the network as an intermediate destination. Routers Can:

* Direct signal traffic efficiently.

• Route messages between any two protocols.

• Route messages between linear bus, star and star-wired ring topologies.

• Route messages across fibre optic, coaxial, and twisted-pair cabling.

**Switches-**

It is a device that selects a circuit for sending data through a network. A concentrator is a device that provides a central connection point for cables from workstations, servers and peripherals. A switch tends to be simpler, faster and less expensive than a router, lacks information about the network that a router may use in determining the best circuit or path to use to move data from one part of a network to another.

**Hubs-**

It is used in the network but these are such type of network devices that transmits a data to all its connected devices. It does not control the traffic so they are less used in comparison to switches.

**6 a) Write about E-Commerce framework.**

The architectural framework for e-commerce consists of six layers of functionalityor services as follows:

1.Application services.

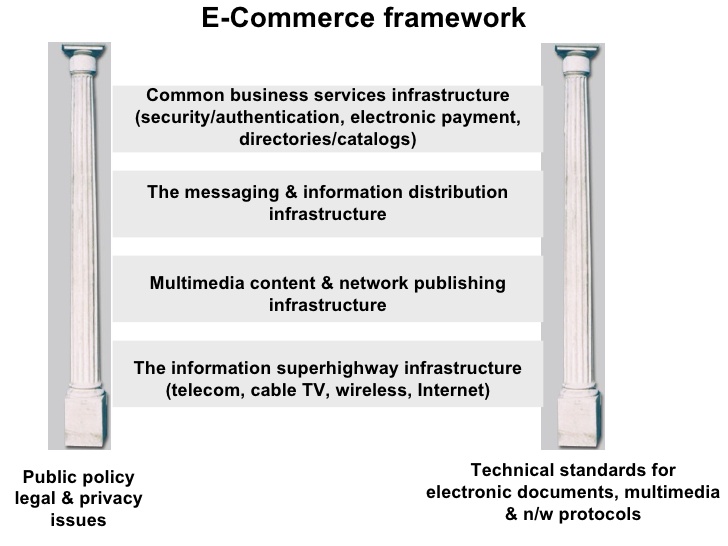
2.Brokerage services, data or transaction management.

3.Interface and support layers.

4.Secure messaging, security and electronic document interchange.

5.Middleware and structured document interchange, and

6. .Network infrastructure and the basic communication services.



1.**Applications:**

In the application layer services of e-commerce, it is decided that what type of e-commerce application is going to be implemented. There are three types of distinguished e-commerce applications i.e., consumer to business application, business-to-business application and intra-organizational application.

2.**Information Brokerage and Management Layer:**

This layer is rapidly becoming necessary in dealing with the voluminous amounts of information on the networks. This layer works as an intermediary who provides service integration between customers and information providers, given some constraint such as low price, fast services or profit maximization for a client. For example, a person wants to go to USA from India.

The person checks the sites of various airlines for the low-price ticket with the best available service. For this he must know the URLs of all the sites. Secondly, to search the services and the best prices, he also has to feed the details of the journey again and again on different sites.

If there is a site that can work as information broker and can arrange the ticket as per the need of the person, it will save the lot of time and efforts of the person. This isjust one example of how information brokerages can add value.

Another aspect of the brokerage function is the support for data management and traditional transaction services. Brokerages may provide tools to accomplish more sophisticated, time-delayed updates or future-compensating transactions.

3.**Interface and Support Services:**

The third layer of the architectural framework is interface layer. This layer provides interface for e-commerce applications. Interactive catalogs and directory support services are the examples of this layer.

1. **b) Write the multimedia content for E-commerce applications.**

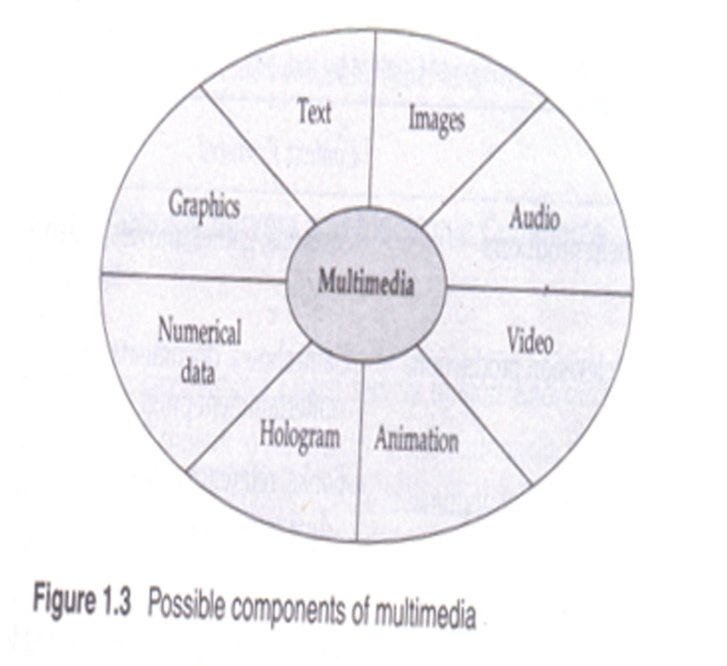
Multimedia is the use of digital data in more than one format such a combination of text, audio, video, graphics in computer file.

Multimedia is associated with the hardware convergence taking place in communication, computer and cable •industry as the next generation digital.

Access to multimedia content depends on the hardware and software applications that run on it.

The success of ecommerce applications also depends on variety and innovativeness of multimedia content and packaging. It includes television productions, traditional print productions, software and information services.

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.



**Impact of internet on the Marketing Field**

Internet marketing is not a singular approach to raising interest and awareness in a product. Because of the vast number of platforms the Internet creates, the field encompasses several disciplines. It involves everything from email, to Search Engine Optimization (SEO), to website design, and much more to reach an ever-evolving, ever-growing audience.

An Internet marketing campaign doesn't have to be comprehensive. Not all campaigns need an email newsletter, a viral video, or a social networking component, but finding the right balance between these options typically leads to greater rates of success for marketing professionals.

For instance, a strong Internet marketing campaign for the release of a new album might consist of a website about the album, daily updates by the artist on social networking pages, and a music video released on popular video sites like YouTube.

**Future of internet in Education Field**

**Enhanced Lessons**

Teachers can make use of the Internet by giving students extra resources and material from the Internet, such as interactive lessons and educational games. Many college courses use a "hybrid" model where many lessons are done online, requiring fewer in-class meetings. This saves students from having to commute to campus with their heavy textbooks every day. Tests, homework, collaboration with students and research can all be done from any computer with Internet access. Even for non-hybrid classes, the [Internet is used](http://i.viglink.com/?key=535fb381c276aba2df16c56f4cdce13c&insertId=4f8ab6ebef4913d2&type=H&mid=184059&exp=60%3ACI1C55A%3A12&libId=jtv9e72m01021li9000DAcaathl8i&loc=https%3A%2F%2Fitstillworks.com%2Fimportance-internet-education-1232.html&v=1&iid=4f8ab6ebef4913d2&opt=true&out=http%3A%2F%2Frd.bizrate.com%2Frd%3Ft%3Dhttps%253A%252F%252Fwww.amazon.com%252Fdp%252FB01CVLW7RY%252Fref%253Dasc_df_B01CVLW7RY1553511600000%253Ftag%253Dshopz0d-20%2526ascsubtag%253Dshopzilla_mp_1108-20%253BSZ_REDIRECT_ID%2526creative%253D395261%2526creativeASIN%253DB01CVLW7RY%2526linkCode%253Dasn%26mid%3D184059%26cat_id%3D11510901%26atom%3D10385%26prod_id%3D%26oid%3D7238514770%26pos%3D1%26b_id%3D18%26bid_type%3D4%26bamt%3D8086a9d9f3c0e3ef%26ppr%3Ddfe9e740f2bd2833%26rf%3Daf1%26af_assettype_id%3D12%26af_creative_id%3D2973%26af_id%3D615103%26af_placement_id%3D1%26dv%3D519561ea0b0cde87f55e5b4ad81457a30ab7ea5766552c32&ref=https%3A%2F%2Fwww.google.com%2F&title=Importance%20of%20Internet%20to%20Education%20%7C%20It%20Still%20Works&txt=%3Cspan%3EInternet%20%3C%2Fspan%3E%3Cspan%3Eis%20%3C%2Fspan%3E%3Cspan%3Eused%3C%2Fspan%3E) as an addition to normal studies.

**Study and Research**

The Internet contains a wealth of knowledge that is available instantly upon any search. Because of this, the Internet has superseded libraries as a source for information gathering and research. Many teachers will now ask students to visit specific websites to study from home, and online encyclopedias provide masses of knowledge on almost every topic imaginable. The variety of sources allows students to pursue subjects in much greater detail rather than being limited to whatever the teacher sends home.

**Communication**

It used to be that students that forgot work, missed a lecture or couldn't remember an assignment were out of luck until talking face to face with a teacher or a classmate. However, the Internet allows instantaneous connection to your classmates and teachers. Improving communication between students and teachers allows teachers to assist students without having to [stay after class](http://i.viglink.com/?key=535fb381c276aba2df16c56f4cdce13c&insertId=4caba544385ce44f&type=H&exp=60%3ACI1C55A%3A12&libId=jtv9e72m01021li9000DAcaathl8i&loc=https%3A%2F%2Fitstillworks.com%2Fimportance-internet-education-1232.html&v=1&iid=4caba544385ce44f&opt=true&out=https%3A%2F%2Fwww.amazon.com%2Fdp%2F1941630065&ref=https%3A%2F%2Fwww.google.com%2F&title=Importance%20of%20Internet%20to%20Education%20%7C%20It%20Still%20Works&txt=%3Cspan%3Estay%20%3C%2Fspan%3E%3Cspan%3Eafter%20%3C%2Fspan%3E%3Cspan%3Eclass%3C%2Fspan%3E). It also allows for students to have greater efficiency when working on projects with their peers when everyone cannot attend or asking for clarification when something is unclear.

**Accessibility**

A number of universities, such as Harvard, Yale and Stanford, have opened up free courses on a variety of subjects that are accessible to anyone for free. These typically come in the form of lectures on video, but some also have notes attached. This means there is easy access to plenty of free lectures without emptying your bank account to pay tuition. The Internet also makes education accessible to impoverished communities. The "Granny Cloud," for example, made use of Skype as a number of volunteers, mostly retired teachers, read stories aloud over Skype to children in India to teach them how to read

**Components of Multimedia**

The various components of multimedia are Text, Audio, Graphics, Video and Animation. All these components work together to represent information in an effective and easy manner.

Text: Text is the most common medium of representing the information. In multimedia, text is mostly use for titles, headlines,menu etc. The most commonly used software for viewing text files are *Microsoft Word, Notepad, Word pad etc.* Mostly the text files are formatted with ,DOC, TXT etc extension.

Audio: In multimedia audio means related with recording, playing etc. Audio is an important components of multimedia because this component increase the understandability and improves the clarity of the concept. audio includes speech, music etc. The commonly used software for playing audio files are:

1. *Quick Time*
2. *ii) Real player*
3. *iii) Windows Media Player*

Graphics: Every multimedia presentation is based on graphics. The used of graphics in multimedia makes the concept more effective and presentable.the commonly used software for viewing graphics are *windows Picture, Internet Explorer etc.* The commonly used graphics editing software is Adobe Photoshop through which graphics can be edited easily and can be make effective and attractive.

Video: Video means moving pictures with sound. It is the best way to communicate with each other. In multimedia it is used to makes the information more presentable and it saves a large amount of time. The commonly used software for viewing videos are:

1. *Quick Time*
2. *ii) Window Media Player*
3. *iii) Real Player*

Animation: In computer animation is used to make changes to the images so that the sequence of the images appears to be moving pictures. An animated sequence shows a number of frames per second to produce an effect of motion in the user's eye. Some of the commonly used software for viewing animation are:

1. *Internet Explorer*
2. *ii) Windows Pictures*
3. *iii) Fax Viewer*

**Communication Protocols**

Communication protocols are formal descriptions of digital message formats and rules. They are required to exchange messages in or between computing systems and are required in telecommunications.

Communications protocols cover authentication, error detection and correction, and signaling. They can also describe the syntax, semantics, and synchronization of analog and digital communications. Communications protocols are implemented in hardware and software. There are thousands of communications protocols that are used everywhere in analog and digital communications. Computer networks cannot exist without them.

Communications devices have to agree on many physical aspects of the data to be exchanged before successful transmission can take place. Rules defining transmissions are called protocols.

There are many properties of a transmission that a protocol can define. Common ones include: packet size, transmission speed, error correction types, handshaking and synchronization techniques, address mapping, acknowledgement processes, flow control, packet sequence controls, routing, and address formatting

Popular protocols include: File Transfer Protocol (FTP), TCP/IP, User Datagram Protocol (UDP), Hypertext Transfer Protocol (HTTP), Post Office Protocol (POP3), Internet Message Access Protocol (IMAP), and Simple Mail Transfer Protocol (SMTP).

**Information Filtering**

Information filtering describes a variety of processes involving the delivery of information to people who need it. This technology is needed as the rapid accumulation of information in electronic databases makes it imperative that consumers and organizations rely on computing methods to filter and disseminate information.

Features of Information filtering

* Filtering systems involve large amount of data. Typical applications would lead deal with gigabyte of text, or much larger amounts of other media.
* Filtering typically involves streams of incoming data, either being broadcast by remote sources or sent directly by other sources(E-mail). Filtering is often meant to imply the removal of data from an incoming stream, rather than finding data in that stream.
* Filtering has also been used to describe the process of accessing and retrieving information from remote database, in which case the incoming data are result of a search query. This scenario is also used by the developers of systems that generate “Smart Agents” for searching remote, heterogeneous databases.
* Filtering is based on descriptions of individual or group information preference, often called profiles. Such profiles typically represent user interests. The use of the user profiles is common in the library community where the process is defined as the selective dissemination of information (SDI)
* Filtering systems deal primarily with textual information. The problem is more general than that and should include other types of data such as images, voice, and video that are part of multimedia information system

**Significance of E-commerce directories**

Directories perform an essential support function that guides customers in a maze of options by enabling the organization of the information space. Finding things (users, resources, data or applications) in a distributed network is the task of the directory service. Directories inform a potential customer or software about the available services, providers, prices, quality, and other important characteristics necessary for making purchasing decisions

Need of Directories

Directories are essential for conducting electronic commerce. Although directory services are one of the most fundamental components of the electronic commerce, technically they are the least understood and have been invisible component in network architecture.

Types of Directories

* White pages - White pages are used to locate people or institutions
* Yellow pages – Are oriented towards consumers who have decided to buy a product or service

The goal is to build directories that serve as interfaces to resources and are accessible from electronic commerce applications that have extensive directory requirements. An effective directory service must be readily accessible by all network components, provide quick response times and accuracy reflects changes in network configurations and resources as they occur.

The challenge is to create a directory representation that can be accessed by different types of networks (Wired or Wireless), different types of interfaces(Mobile, TV, PC), different types of access applications(E-mail) and various applications(Home shopping, Mobile shopping)

**Mobile Computing**

A technology that is capable of providing an environment which enables users to transmit data from one device to other device without the use of any physical link/cables is known as Mobile Computing.

The goal of mobile computing is to work toward true computing freedom whereby users can connect the network from anywhere, anytime – and operate as if they were sitting in the “home” office,

Mobile Computing Framework

Mobile computing is expanding in four dimensions

* Wireless delivery technology and switching methods: these deals with the rapidly expanding delivery technology of cellular, radio, paging, satellite, and wireless communications and promise to mobile users anywhere at any time.
* Mobile information access devices: in addition to the changing delivery technology we are seeing an explosion in the variety of access equipment ranging from large units- laptops, notebooks and other portable computers with large memories and powerful processors – to hand- helds
* Mobile data internetworking standards and equipment: voice – oriented cellular systems were not designed with data transmission in mind. The week co

**E-Commerce Directories**

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**White Pages**

The white pages of the phone book are the residential listings. People who have opted to be listed in the phone book are included in the white pages in alphabetical order. White pages also typically list street addresses and ZIP codes. Residential listings can be omitted at the subscriber's request, usually for a small fee.

**Yellow Pages**

The yellow pages are for businesses and organizations. Listings in the yellow pages are grouped by category. For example, all accountants will be categorized under the accountant heading and all dentists will be categorized under dentists. In larger categories, they are subgroups. Under the restaurant category will be listings for different kinds of cuisine, and they are grouped for convenience. Such as restaurants and restaurants that serve Chinese food are grouped together. In some cases, businesses and organizations are group by location, such as the spring and Pasadena areas of Houston. Yellow pages are used for advertising, and many businesses include photos and brief blurbs of information about their business.

**Marketing Strategies**

A marketing strategy is a business's overall game plan for reaching people and turning them into customers of the product or service that the business provides. The marketing strategy of a company contains the company’s [value proposition](https://www.investopedia.com/terms/v/valueproposition.asp), key marketing messages, information on the target customer and other high-level elements.

The marketing strategy informs the [marketing plan](https://www.investopedia.com/terms/m/marketing-plan.asp), which is a document that lays out the types and timing of marketing activities. A company’s marketing strategy should have a longer lifespan than any individual marketing plan as the strategy is where the value proposition and the key elements of a company’s brand reside. These things ideally do not shift very much over time.

Marketing strategies are often confused with marketing plans. Because they do feed off one another, it is not unusual to find the marketing strategy and the marketing plan baked together into a single document. Although the transition between the two is blurry, a marketing strategy covers the big picture of what the business offers: the value proposition and related brand messaging. The marketing plan is how the business will get across the key message: the platforms, the creative, the timing and so on. The marketing strategy may also be absorbed upwards into the corporate value statements and other strategy documents.

**Methods of Advertising**

A successful advertising campaign will spread the word about your products and services, attract customers and generate sales. Whether you are trying to encourage new customers to buy an existing product or launching a new service, there are many options to choose from.

**Newspaper**

Newspaper advertising can promote your business to a wide range of customers. Display advertisements are placed throughout the paper, while classified listings are under subject headings in a specific section.

You may find that a combination of advertising in your state/metropolitan newspaper and your local paper gives you the best results.

**Radio**

Advertising on the radio is a great way to reach your target audience. If your target market listens to a particular station, then regular advertising can attract new customers.

However, sound has its limitations. Listeners can find it difficult to remember what they have heard and sometimes the impact of radio advertising is lost. The best way to overcome this is to repeat your message regularly - which increases your costs significantly. If you cannot afford to play your advertisement regularly, you may find that radio advertising does not generate strong results.

**Television**

Television has an extensive reach and advertising this way is ideal if you cater to a large market in a large area. Television advertisements have the advantage of sight, sound, movement and colour to persuade a customer to buy from you. They are particularly useful if you need to demonstrate how your product or service works.

**Direct mail, catalogues and leaflets**

Direct mail means writing to customers directly. The more precise your mailing list or distribution area, the more of your target market you will reach. A direct mail approach is more personal, as you can select your audience and plan the timing to suit your business. A cost effective form of direct mail is to send your newsletters or flyers electronically to an email database

**Online**

Being on the internet can be a cost-effective way to attract new customers. You can reach a global audience at a low cost. Many customers research businesses online before deciding whom to buy from.

A well-designed website can entice customers to buy from you. There are a number of ways you can promote your business online via paid advertising or to improve your search engine rankings.

**Applications of internet for Different users**

The Internet has revolutionized a whole range of fields and applications with a myriad of possible uses. To list them all could possibly fill pages. Here are therefore just a few of the main uses of the Internet in different fields.

* Business

Within the field of business, the Internet has opened up a broad range of uses, from worldwide advertising, the undertaking of transactions and making payments to Internet banking, etc. Business communications also benefit through e-mail, direct access to companies via websites, chat based customer service facilities and online conferencing.

* Training and Information

Apart from a vast range of online study facilities, the Internet also presents an unlimited resource for study related research conducted by students of every imaginable and unimaginable subject. It allows access to resources and communication with distant tutors. As a matter of fact, anyone requiring any kind of information is likely to be able to find and access the necessary resources via the Internet.

* Communication

The Internet makes it possible to stay in touch and communicate with friends and family around the world via e-mail, social networks and chat facilities. Commerce and education equally benefit from some or all of these facilities.

* Leisure

Whether an individual's favorite pastime involves music, movies or games, it can be easily accessed via the Internet. Travel destinations, information and arrangements, arts, crafts, hobbies and any related information are equally easy to access.

* Shopping

From appliances and books to clothing, groceries and gadgets; from insurance services to software, in short anything the heart desires can be found and purchased via the Internet.

**Market forces influencing the I-Way**

Information highway will allow us to share information, to connect, and to communicate as a global community

High – capacity, interactive electronic pipeline providing integrated services. The information superhighway is very much a physical network, an infrastructure of modern high speed links.

Links everyone at home or office to everything else

The information superhighway is a physical network, facilitating the broadband, two –way transmission of any type of digital information, within its own virtual space.

Digitization

* Integrity of the information
* Manipulation
* Compression
* Convergence

**New trends in Online Marketing**

As the Internet has become central to consumers’ everyday lives, its use as a marketing medium is critical. While marketing encompasses both theory and practice, Internet marketing has especially demonstrated how practices continue to change with the latest in technology. New trends are constantly emerging, requiring Internet marketing professionals to remain current and informed on how these technologies are being used.

Keeping Current

Society’s reliance on the Internet has changed the face of how businesses operate, especially within the marketing industry. Marketing professionals must continue to stay current on the latest online technologies, practices and trends to keep their competitive edge.

One way that Internet marketing professionals can accomplish this is with continued education, attending networking events and taking advantage of professional development opportunities such as free webinars and professional conferences.

Social Media Marketing

Because of the [widespread use of social media](http://www.forbes.com/sites/moneywisewomen/2012/08/08/the-developing-role-of-social-media-in-the-modern-business-world/) and the fact that it is relatively inexpensive, this medium has become an integral platform for brands, companies and organizations to market themselves.

One of the main tenets of social media use is sharing, which helps support the role of social media platforms as a medium. Social media marketing has proven successful in allowing brands to create awareness, as users share their content within their own networks of social connections.

Content Marketing

Content marketing is a relatively new concept used by Internet marketers in which unique content about a particular brand or company is created and shared with the intent to attract and build an audience. One important benefit of content marketing is that it allows a brand to find its voice while establishing itself as a thought leader in a particular industry.

Search Engine Optimization

[Search engine optimization](http://searchengineland.com/guide/what-is-seo) is another Internet marketing strategy that can positively affect the amount of traffic or visitors to a website. Currently, Internet marketers use SEO by creating web content that responds well to search engines, as well as what terms and keywords web users are searching for. By tailoring their content to these criteria, Internet marketing professionals are able to get their content in front of more consumers, thus increasing their marketing reach.

**Stages in Multimedia and Data Compression**

Data compression attempts to pack as much information as possible into a given amount of storage space and ranges from a little as 2:1 to as much as 200:1, depending on the compression/ Decompression scheme as level of quality desired.

Compression methods in use include the following

Sector oriented disk compression: integrated into the operating system, this form of compression is invisible to the end user.

Backup or archive – oriented compression: programs such as PKZIP are often used to compress file before they are downloaded over phone line or stored on floppy disk.

Graphics and video – oriented compression: Graphics data in particular can effectively overwhelm any systems online storage capability. Compression techniques designed especially for graphics reduce storage requirements by a factor of 100 and can alleviate the flood of data

Data Compression in Action

Data compression works by eliminating redundancy. Each block of data has underlying information content, usually expressed as a number of bits. A block of text data containing 1000 bits may only have an underlying information content of 100 bits with the rest being white space. The goal of data compression is to make the size of the 1000 bit message as close as possible to the 100 bits of underlying information

Compression techniques

Compression techniques can be divided into two major categories

* Lossless
* Lossy

Lossless: Lossless compression produces compressed output that is exactly the same as the input. Lossless compression is used on text and numeric data,

Lossy: Lossy compression means that a given set of data will undergo a loss of accuracy or resolution and decompression. This type of compression is usually performed on voice, graphics, or voice data. Ex : MPEG – Motion Picture Experts Group, JPEG- Joint Photographic Experts Group

**Various tools Digital Media**

There are too many cool things happening in [social media](https://ecommerce-platforms.com/glossary/social-media) not to keep the conversation going. We talked some time ago about [social media for ecommerce](https://ecommerce-platforms.com/ecommerce-selling-advice/7-social-marketing-tools-absolutely-must-use-ecommerce-business).

**1.**[Buffer](https://buffer.com/)

Simple and easy to use tool for those who want to queue curated content. Same drill: you schedule the content and Buffer automatically posts it when you please. Cool feature: great to see which post performed best.

**2.**[Social Rank](https://socialrank.com/)

This tool keeps an eye on your Twitter account and helps you identify top followers. Thus, you'll find out who are ‘the best' ones (the influential accounts, the ‘valuable' ones), and those who interact with you often. You'll figure it out in no time. Cool feature: it's all turned into statistics that will hit your inbox on a monthly basis. Some followers DO need special attention. Honestly.

**3.**[SocialBro](https://audiense.com/" \t "_blank)

Here'a another tool for Twitter. It's a bit like ‘all about your Twitter account'. And I mean everything: tweets analytics, community insights, etc. In those two weeks free trial, you'll have plenty of time to test all the uber cool (healthy) ‘spying' features.

**4.**[Commun.it](https://commun.it/" \t "_blank)

With this one you can manage your followers, but you can also organize and grow your business as it can help you manage multiple accounts. Don't forget to make the most of it, and keep an eye on those influential accounts hovering about.

**5.**[Tweetdeck](https://tweetdeck.twitter.com/" \t "_blank)

Yet another highly popular Twitter management tool. Makes it easy to organize and track your content. Oh, yes, AND helps you engage with followers. The customizable dashboard keeps everything on one page (literally). Saves time too.

**6.**[Infogr.am](https://infogram.com/" \t "_blank)

Infographics are everywhere, and this tool helps you build them. You just enter information, and with the help of great features, like design templates, you'll get that amazing infographic in no time. Visual content it's a must, so, don't think twice.

**7.**[Visually](https://visual.ly/?source=homepage)

This tool helps you with visual content too: infographics, charts, videos, presentations and the like. Big plus: cheaper than hiring an agency to do them for you. I said cheaper, not necessarily cheap.

**8.**[LikeAlyzer](http://likealyzer.com/" \t "_blank)

Facebook analysis tool that puts together  statistics and insights. It also throws in helpful recommendations and allows you to compare yourself to other similar brands.

**9.**[Fanpage Karma](http://www.fanpagekarma.com/" \t "_blank)

Another tool that collects valuable information on Facebook. You'll know more about engagement, growth, service, etc. It helps you with useful insights into Twitter and YouTube too.

**10.**[Klout](https://klout.com/home" \t "_blank)

I'm sure you've already heard of this one, even if you're new to social marketing. The amazing thing about this one is that it collects information on several social profiles. It comes up with a popularity score you'll probably end up checking obsessively (joking!). They keep adding handy features (like tracking topics or making content suggestions).

**Design of E-Payment System**

**1. Technological Requirements**

* When designing an electronic payment system, the system’s ability of the effectiveness and the security of each transaction and the degree of compatibility with the online shop must be taken into consideration.
* A payment system requires the greatest level of security in electronic commerce transactions .
* It must have conﬁdentiality, authenticity, integrity and non-repudiation of transactions.

**2. Economic Requirements**

* These deal with the cost of transaction which refers to the amount paid by the client.
* Economic assessments include also atomic exchange which means that the consumer will pay money or something equivalent in value.
* An electronic payment system must also be accessible in all countries of the world, to all ages (user range) or currency in equal value and must not be restricted to the company that created the value.
* Economic needs also deal with ﬁnancial risks ,because consumers and merchants are very concerned about the degree of security involved in online transactions.
* Return on Investment(ROI) is a economic parameter and a performance measure used to evaluate the efﬁciency of an investment.

**3. Social Requirements**

* Payment system must prevent companies or ﬁnancial institutions from tracing user information and must be simple and user-friendly.As social needs, electronic payment methods should also be accessible anywhere.

**4. Legal Requirements**

* Electronic payment system must abide by governmental regulations and the law and guaranty all necessary proofs (digital signature, contracts...)to protect users performing domestic/international transactions.

**1. DATABASE INTEGRATION**

* An integration database is a database which acts as the data store for multiple applications, and thus integrates data across these applications (in contrast to an ApplicationDatabase). An integration database needs a schema that takes all its client applications into account.
* Each record should be kept in separate database.
* Each database must be linked together  to access from anywhere

**2. BROKERS**

* The role of electronic brokers facilitate financial transactions electronically.
* The information superhighway directly connects millions of people, each both a consumer of information and a potential provider. If their exchanges are to be efficient, yet protected on matters of privacy, sophisticated mediators are required.  Electronic brokers  play this important role by organizing markets that promote the efficient production and consumption of information.

**3. STANDARDS**

* The e-payment standards enable payment users to link with various networks and other payment systems.
* Standards for interoperability which enable users to buy and receive information regardless of which bank is managing their money.

**E-Commerce Catalogues**

An electronic catalogue is an online publication, that is to say a graphic interface -generally an html page in which the products and services offered by a company are showed. Digital catalogues can store great quantities of items, which can be organized and classified into different categories for users to search in a more rapid and effective way.

There are different types of catalogues according to their functions. The simplest catalogues show only descriptions of the products and price lists, and do not enjoy a purchase and payment online method. Others have shopping carts, order forms and offer payment methods. The amount of functions an online catalogue has will determine the price of its development.

The main aims of e-catalogues are to advertise, to sell, to distribute, and to draw the customer’s attention. They are the digital representation of a company and a powerful e-commerce tool. In the e-commerce world we find business-consumer transactions and business to business transactions. In this way, e-catalogues are excellent communication tools between a company and its client, suppliers or other companies. For all these reasons, catalogues became a marketing tool used everyday by different types of organizations.

There are different types of electronic catalogues according to the way they appear on the Internet. Retailer’s e-catalogues are generally independent pages on the Internet, and their aim is to promote and sell products and services. But, big companies generally include their e-catalogues on their general websites. Generally, they are not used as tools for selling but as means to promote products and services and to draw the customer’s attention. There are also malls, that is to say e-catalogue groups –ebay.com for example. In this case, an Internet provider gathers different companies’ digital publications, showing a great number of offers made by the users.

Advantages

E-catalogues bring many advantages to different companies. Here we show them to you for you to consider catalogues as a promotion tool for your company:

* **Low costs:**Unlike conventional catalogues, these e-catalogues allow you to save money, since you will not need to spend on paper and printing. For this reason, they are perfect for small and medium-sized companies, which will have, with them, the possibility of getting into the world market.
* **Market expansion**Thanks to the possibilities that the Internet provides, people around the world will be able to gain access to your online catalogues any time. With these catalogues, different companies gain new customers, providing a faster and more comfortable service to consumers. By using these catalogues, users will be able to search for products and services, place orders, make payments by credit cards or payment portals, and clear up their doubts. In this way, sales increase considerably.
* **Interaction**Unlike printed catalogues, digital catalogues allow a direct relationship between the company and its clients. With an e-catalogue, a company can inform about its products and services to its clients, who will contact the company’s representatives to clear up their doubts, to make comments or suggestions. Because of this, company will be permanently updated about the fluctuating necessities of their target.
* **Information for customers**With these catalogues, each company will be able to provide information on the products and services it offers and links to other websites for customer to get complementary information on the subjects the company’s website leads with.
* **Regular update**E-catalogues content is stored on a server to which navigators from all over the world have access. They can be updated from the server in a regular, fast and easy way. What is more, the changes made are immediately available for customers to see. In this way, catalogues show the latest about new products, prices, points of sale, new technology incorporations, etc.

**Various stages of Multimedia entity**

Multimedia refers to content that uses more than one medium. The categories of media are slippery, but they generally include:

* Text
* Sound
* Graphics/images
* Animation/video (live footage as opposed to animation)

Multimedia became an important concept as the Web moved away from a largely textual layout to a graphical one. Many sites were competing to become true multimedia sites with a mixture of text, sound, images and videos.

Regardless of its type or transport means, a multimedia entity (Eg: Video image) must pass through series of stages from inception to display, including

Image Capture/Generation: The image captured by a sensor such as a television camera or is generated by an electronic device such as a computer.

Compression: the volume of information in the raw image may be too large to be sent through an affordable transmission channel. Therefore the data must be compressed to reduce its volume is such a way that the picture can be reconstructed without degradation at the receiving end.

Storage: the compressed data are stored on CD-ROM or network storage servers until they are ready for transport or display

Transport: the data representing the image are prepared for transmission. Each component of a video program such as a picture, sound, and associated data is separately organized into packets of data. Address and descriptive information is included in each packet. Packets are aggregated into a single bit stream for transmission. This bit stream is then transmitted through a data communication network. The speed of transmission depends on the characteristics of the medium.

Desktop processing and display: once the image is received, the earlier steps are reversed. The bits that were added to aid in transmission are removed. The video, audio and data streams for each program are separated. The data stream containing the images may be stored until ready for display. The images are then decomposed and formatted for display on a television, computer monitor, or other appliance.

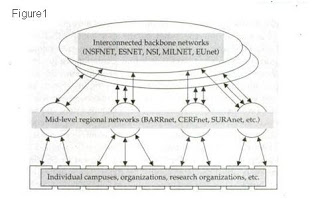
**Explain in detail about NSFNET architecture and components**

       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 NFSNET 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 can be depicted in the three level hierarchical models as shown in the figure:



**Fig1: Figure1 shows the structure of the Internet hierarchy from national backbone to campus network.**

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.

     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.

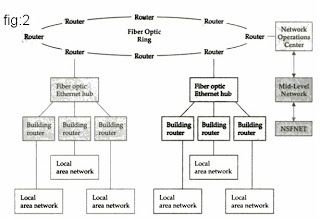
**State and Campus Networks**

       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.



**Explain briefly about the anatomy of E-commerce applications.**

•Multimedia Content for E-Commerce Applications

•Multimedia Storage Servers & E-Commerce Applications

              i. Client-Server Architecture in Electronic Commerce

              ii. Internal Processes of Multimedia Servers

              iii. Video Servers & E-Commerce

•Information Delivery/Transport & E-Commerce Applications

•Consumer Access Devices

***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. See in Fig.

•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

***i. 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.

•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.

***ii. 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.

•Incude high-end symmetric multiprocessors, clustered architecture, and massive parallel systems.

***iii. 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 video 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.

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

***Consumer Access Devices***

**Information Consumers                                        Access Devices**

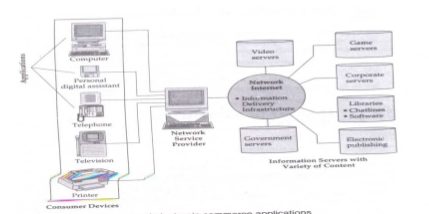
•Computers with audio & video                    Personal/desktop computing,

 capabilities                                                   Mobile computing

•Telephonic devices                                      Videophone

•Consumer electronics                                   Television + set-top box Game systems

•Personal digital assistants (PDAs)                Pen-based computing, voice-driven computing

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