Ecommerce

Unit - 1

E-Commerce Notes
Unit-1
Lecture-1

Introduction to Commerce

- Commerce is basically an economic activity involving trading or the buying and selling of goods.

  For e.g. a customer enters a book shop, examines the books, select a book and pays for it. To fulfill the customer requirement, the book shop needs to carry out other commercial transactions and business functions such as managing the supply chain, providing logistic support, handling payments etc.

  As we enter the electronic age, an obvious question is whether these commercial transactions and business functions can be carried out electronically.

  In general, this means that no paperwork is involved, nor is any physical contact necessary. This often referred to as **electronic commerce (e-commerce)**.

  The earliest example of e-commerce is **electronic funds transfer**. This allows financial institutions to transfer funds between one another in a secure and efficient manner.

  Later, **electronic data interchange (EDI)** was introduced to facilitate inter-business transactions.

E-Commerce

- "E-Commerce or Electronic Commerce, a subset of E-Business, is the purchasing, selling and exchanging of goods and services over computer networks (such as Internet) through which transactions are performed".
- "E-Commerce can be defined as a modern business methodology that addresses the needs of organizations, merchants and consumers to cut costs while improving the quality of goods and services and increasing the speed of service delivery by using Internet".
- E-Commerce takes place between companies, between companies and their customers, or between companies and public administration.

FEW EXAMPLES OF E-Commerce are:

- Amazon.com, an online bookstore started in 1995 grew its revenue to more than 600$ million in 1998.
- Microsoft Expedia, an integrated online travel transaction site helps to choose a flight, buy an airline ticket, book a hotel, rent a car etc. in only a few minutes.

E-Commerce vs Traditional Commerce

- E- Commerce is about the sale and purchase of goods or services by electronic means, particularly over the internet. In a pure e-commerce system, transactions

take place via electronic means. In this case, you will access a cyber bookstore and download a digital book from a server computer.

- In a physical or traditional commerce system, transactions take place via contact between humans usually in a physical outlet such as a bookstore.
  For e.g. if you want to buy a book, you will go to a physical bookstore and buy the physical book from a salesman.
- E-Commerce is more suitable for standard goods, intangible goods; whereas traditional commerce is more suitable for non standard goods, perishable goods, and expensive goods.
- Complex products such as cars are better served by integrating e-commerce and physical commerce.

Difference between Traditional Commerce and E-commerce

SNO	Traditional Commerce	E-commerce
1.	Customers can easily identify and authenticate a merchant by seeing him directly.	It is not easy in this case.
2.	Customers can directly talk to merchant. Communication pages is not in the hands of a third party.	Customers can only see the representation & can only see the web.

SNO	Traditional Commerce	E-commerce
3.	Customers can interact with other customers and gain feedback about merchant from other customers.	Customers cannot interact with other customers.
4.	It is not available all the time	It is always available 24*7*365 hours.
5.	It is a slow method.	It is a fast method.

SNO	Traditional Commerce	E-commerce
6.	Customers just give cash to merchant & there is no need to give their name or address. So there is no worry about personal information.	Customers have to give their personal information to purchase the product.

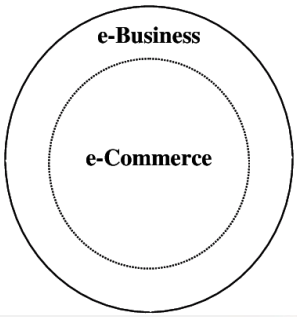
E-Business

- "E-Business is the conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners".
- E-Business means connecting critical business systems directly to customers, vendors and suppliers- via the Internet, Extranet and Intranets.

- Therefore it means using electronic information to boost performance and create value by forming new relationships between and among businesses and customers.
- One of the first to use the term was IBM, in October 1997, when it launched a campaign built around e-business.

E-Business enables organizations to accomplish the following goals:-

- Reach new markets.
- Create new products or services.
- Build customer loyalty
- Make the best use of existing and emerging technologies.
- Achieve market leadership and competitive advantage.
- Enrich human capital.



e-Commerce is a subset of e-Business

Advantages of E-Commerce to Customers

- **Reduced Prices**:- Costs of products are reduced since the stages along the value chain are decreased. For instance, intermediaries can be eliminated by the company directly selling to the customers instead of distributing through a retail store.
- **24-Hour Access**:- Online businesses never sleep as opposed to brick and mortar businesses. E-Commerce allows people to carry out businesses without the barriers of time.
- **Global Marketplace**:- Consumers can stop anywhere in the world. Currently according to World Trade Organization (WTO) there are no custom duties put on

products bought and traded globally electronically. This also provides wide selection of products and services to consumers.

- **More Choices**:- Provides consumers with more choices. For e.g. before making any purchase, customer can study about all the major brands and features of any item. It also provides consumers with less expensive products and services by allowing them to shop in many places.

Advantages of E-Commerce to Businesses

- **Increased potential market share**:- The internet enables businesses to have access to international markets thereby increasing their market share. Companies can also achieve greater economies of scale.
- **Low cost Advertising**:- Advertising on the internet costs less than advertising on print or television depending on the extent of advertisement. Advertising on the internet itself is less costly since there is less cost associated with it in terms of printing and limited television spots.
- **Low barriers to Entries**:- Anyone can start up a company on the internet. Start-up costs are a lot lower for companies since there is less need for money for capital.
- **Strategic Benefits**:- The Strategic benefits of making a business e-commerce enabled is that it helps reduce the delivery time, labour cost and the cost incurred in document preparation, data entry, error detection etc.

Disadvantages of E-Commerce

- **Hidden Costs**:- Although buying online is convenient, the cost of this convenience is not always clear at the front end. For e.g. on-line purchases are often accompanied by high shipping and re-stocking fees, a lack of warranty coverage and unacceptable delivery times. In fact, too many e-commerce companies have developed a reputation of overcharging for shipping and handling.
- **Lack of Security**:- One of the main roadblocks to the wide acceptance of e-commerce by businesses and consumers alike is the perceived lack of adequate security for on-line transactions.

  For e.g. Consumers are growing increasingly worried about providing credit card information over the Internet.

  During the past few years, the press has been filled with reports about hackers breaking into e-business and stealing credit card information.
- **Lack of Privacy**:- Customers also worry about the privacy implications of data gathered by organizations of all types and sizes. Even at the simplest data level, sales information is stored in databases connected to web servers, thus exposing the information to cyber criminals. Because data gathering on the web is so easy, databases routinely contain information about customer purchasing habits, credit information and so on. In many cases, companies sell customer database information to marketing companies. In turn, the marketing companies engage in

massive e-mail campaigns to attract new customers. It doesn't take long for the customer's email box to be filled with unwanted email (also known as Spam).

- **Network Unreliability**:- Although the Internet is designed to overcome the single point of failure problem, there have been several well-publicized incidents of network failures during the past few years. Network reliability problems may be generated by such factors as:-

 Equipment failure in the network connection provider.
 Accidental problems caused by nature-such as lightning, floods, earthquakes that affect communication lines.
 Long response time due to increased network traffic or inadequate bandwidth.

- **Low Service Levels**:- Another common complaint about doing business online is the low level of customer service that online companies tend to provide. Although technology has automated business transactions to a large extent, there remains a real need for the human touch. Therefore e-commerce websites must provide:-

 A pleasant and problem free pre-ordering and ordering experience. The website design is an important interface.
 Readily available easily used feedback options.
 Quick complaint resolution.
 Timely and low-cost shipping delivery to customers.

Scope of E-Commerce

- E-Commerce 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.

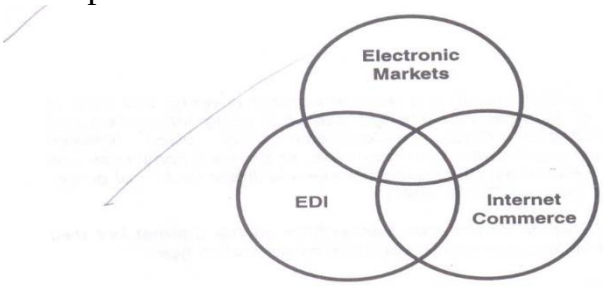


Fig. 1.1 The three categories of e-Commerce.

- **Electronic Markets**:-

An electronic market is the use of information and communication technology to 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
e.g. Airline Booking System

- **Electronic Data Interchange**:-

 It provides a standardized system for coding trade transactions so that they can be 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 make a large no. of regular transactions.
e.g. EDI is used in the large supermarket chains for transactions with their suppliers.

- **Internet Commerce**:-

 Information and communications technologies can be used to advertise & make sales of wide range of goods & services.
 This application is both for business to business & business to consumer transactions.
e.g. The purchase of goods that are then delivered by post or the booking of tickets that can be picked up by the clients

Unit-1
Lecture-2

Types of E-Commerce/ E-Commerce Market Models

- There are five types of E-Commerce:-

 Business To Business (B2B)
 Business To Consumer (B2C)
 Consumer To Business (C2B)
 Consumer To Consumer (C2C)
 Business To Government (B2G)

Business To Business (B2B):- Business to Business or B2B refers to e-commerce activities between businesses. An E-Commerce company can be dealing with suppliers or distributers or agents. These transactions are usually carried out through Electronic Data Interchange (EDI). EDI is an automated format of exchanging information between businesses over private networks.

For e.g. manufacturers and wholesalers are B2B Companies.

By processing payments electronically, companies are able to lower the number of clerical errors and increase the speed of processing invoices, which result in lowered transaction fees.

In general, B2Bs require higher security needs than B2Cs.

With the help of B2B E-commerce, companies are able to improve the efficiency of several common business functions, including supplier management, inventory management and payment management.

Business To Customer (B2C):- Business to Customer or B2C refers to E-Commerce activities that are focused on consumers rather than on businesses.

For instance, a book retailer would be a B2C company such as Amazon.com. Other examples could also be purchasing services from an insurance company, conducting on-line banking and employing travel services.

Customer To Business (C2B):-

Customer to Business or C2B refers to E-Commerce activities which use reverse pricing models where the customer determines the prices of the product or services.

In this case, the focus shifts from selling to buying. There is an increased emphasis on customer empowerment.

In this type of E-Commerce, consumers get a choice of a wide variety of commodities and services, along with the opportunity to specify the range of prices they can afford or are willing to pay for a particular item, service or commodity.

Customer To Customer (C2C):-

Customer to Customer or C2C refers to E-commerce activities, which use an auction style model. This model consists of a person-to-person transaction that completely excludes businesses from the equation.

Customers are also a part of the business and C2C enables customers to directly deal with each other.

An example of this is peer auction giant ebay.

Business To Government (B2G):- It is a new trend in E-Commerce. This type of E-Commerce is used by the government departments to directly reach to the citizens by setting up the websites.

These websites have government policies, rules and regulations related to the respective departments.

Any citizen may interact with these websites to know the various details. This helps the people to know the facts without going to the respective departments. This also saves time of the employees as well as the citizens.

History of E-Commerce

- The history of Ecommerce seems rather short but its journey started over 40 years ago in hushed science labs
- In the 1960s, very early on in the history of Ecommerce, its purpose was to exchange long distance electronic data. In these early days of Ecommerce, users consisted of only very large companies, such as banks and military departments, who used it for command control communication purposes. This was called EDI, and was used for electronic data interchange.
- Originally, electronic commerce was identified as the facilitation of commercial transactions electronically, using technology such as Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT). These were both introduced in the late 1970s, allowing businesses to send commercial documents like purchase orders or invoices electronically.
- The growth and acceptance of credit cards, automated teller machines (ATM) and telephone banking in the 1980s were also forms of electronic commerce
- In 1982 Transmission Control Protocol and Internet Protocol known as TCP & IP was developed. This was the first system to send information in small packets along different routes using packet switching technology, like today's Internet! As opposed to sending the information streaming down one route
- Beginning in the 1990s, electronic commerce would include enterprise resource planning systems (ERP), data mining and data warehousing
- In 1995, with the introduction of online payment methods, two companies that we all know of today took their first steps into the world of Ecommerce. Today Amazon and ebay are both amongst the most successful companies on the Internet

Year	Event
1984	EDI, or electronic data interchange, was standardized through ASC X12. This guaranteed that companies would be able to complete transactions with one another reliably.
1992	Compuserve offers online retail products to its customers. This gives people the first chance to buy things off their computer.
1994	Netscape arrived. Providing users a simple browser to surf the Internet and a safe online transaction technology called Secure Sockets Layer.
1995	Two of the biggest names in e-commerce are launched: Amazon.com and eBay.com.
1998	 DSL, or Digital Subscriber Line, provides fast, always-on Internet service to subscribers across California. This prompts people to spend more time, and money, online.
1999	Retail spending over the Internet reaches $20 billion, according to Business.com.
2000	The U.S government extended the moratorium on Internet taxes until at least 2005.

Functions of E-Commerce

- **Marketing**:- One of the areas it impacts particularly is direct marketing. In the past this was mainly door-to-door, home parties (like the Tupperware parties) and mail orders using catalogues or leaflets. This moved to telemarketing and TV selling with the advance in television technology and finally developed into e-marketing.
- **Human Resource Management**:- Issues of on-line recruiting, home working and 'entrepreneurs' working on a project by project basis replacing permanent employees.
- **Business law and ethics**:- The different legal and ethical issues that have arisen as a result of a global 'virtual' market. Issues such as copyright laws, privacy of customer information etc.
- **Management Information System**:- Analysis, design and implementation of e-business systems within an organization ; issues of integration of front-end and back-end systems.
- **Product Operations and Management**:- The impact of on-line processing has led to reduced cycle time. It takes seconds to deliver digitized products and services electronically; similarly the time for processing orders can be reduced by more than 90 percent from days to minutes.

- **Finance and Accounting**:- On-line banking ; issues of transaction costs ; accounting and auditing implications where 'intangible' assets and human capital must be tangibly valued in an increasing knowledge based economy.
- **Economy**:- The impact of E-commerce on local and global economies; understanding the concepts of a digital and knowledge based economy and how this fits into economic theory.

E-Commerce Applications

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

- **E-Marketing**:-

 E-Marketing also known as Internet Marketing, Online Marketing, Web Marketing.
 It is the marketing of products or services over the internet.
 It is consider to be broad in scope because not refers to marketing on the internet but also done in Email and wireless media.
 E-Marketing ties together the creative and technical aspects of the internet, including design development, advertising and sales.
 Internet marketing is associated with several business models i.e., B2C, B2B, C2C.
 Internet marketing is inexpensive when examine the ratio of cost to the reach of the target.

- **E-Advertising**:-

 It is also known as online advertising it is a form of promotion that uses internet and World Wide Web to deliver marketing messages to attracts customers.
Example: Banner ads, Social network advertising, online classified advertising etc.
 The growth of these particular media attracts the attention of advertisers as a more productive source to bring in consumers.

- **E-Banking**:-

 Means any user with a personal computer and browser can get connected to his banks, website to perform any of the banking functions. In internet banking system the bank has a centralized data base i.e., web-enabled.
 Best example for E-Banking is ATM.
 An ATM is an electronic fund transfer terminal capable of handling cash deposits, transfer, Balance enquiries, cash withdrawals, and pay bills.

- SERVICES THROUGH E-BANKING:

 Bill Payment Service
 Fund Transfer
 Investing through Internet Banking
 Shopping

- **<u>E-Learning</u>**:-

 E-Learning comprises all forms of electronically supported learning and teaching.
 E-Learning applications and processes include web-based learning, computer-based learning.
 Content is delivered via. The internet, intranet/extranet, audio, or video tape, satellite TV.
 E-Learning is naturally suited to distance and flexible learning, but can also be used conjunction with face-to-face teaching.
 E-Learning can also refer to the educational website such as those offering learning scenarios worst and interactive exercises for children.
 A learning management system (LMS) is software used for delivering, tracking, and managing training /education.

- **<u>Mobile Commerce</u>**:-

 Mobile Commerce also known as M-Commerce, is the ability to conduct, commerce as a mobile device, such as mobile phone.
 Banks and other financial institutions use mobile commerce to allow their customers to access account information and make transactions, such as purchasing, withdrawals etc.,
 Using a mobile browser customers can shop online without having to be at their personal computer.

- SERVICES ARE:

  1. Mobile ticketing
  2. Mobile contract purchase and delivery mainly consumes of the sale of ring tones, wallpapers and games of mobile phones.
  3. Local base services

- Local discount offers
- Local weather

  4. Information services

- News
- Sports, Scores

- **<u>Online Shopping</u>**:-

 Online shopping is the process whereby consumers directly buy goods or services from a sell in real time, without intermediary services over the internet.

 An online shop, e-shop, e-store, internet shop web shop, web store, online store, or virtual shop evokes the physical analogy of buying products or services in a shopping center.
 In order to shop online, one must be able to have access to a computer, a bank account and debit card.
 Online shoppers commonly use credit card to make payments , however some systems enable users to create accounts and pay by alternative means ,such as

- Cheque.
- Debit cards.
- Gift cards

 Online stores are usually available 24 hours a day

- **<u>Entertainment</u>**:-

 The conventional media that have been used for entertainment are

1. Books/magazines.
2. Radio.
3. Television/films.
4. Video games.

Online books /newspapers, online radio, online television, online firms, and online games are common place in internet where we can entertain.

 Online social networking websites are one of the biggest sources of E-entertainment for today's tech-savvy generation.

E-Commerce Notes

Unit-1
Lecture-3

E-Commerce Trade Cycle

- E-Commerce can be applied to all, or different phases of the trade cycle.
- **The trade cycle varies depending on**:-

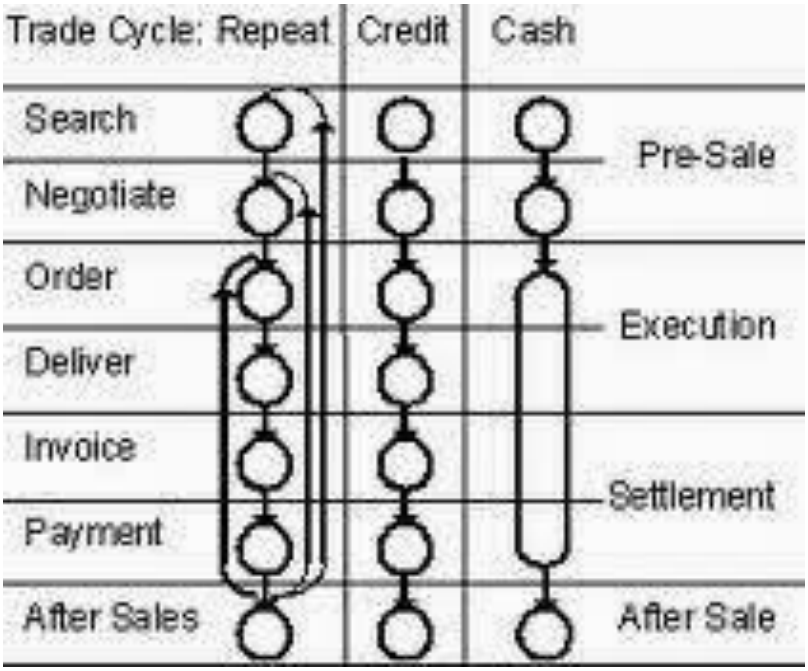
 The nature of the organization (or individuals) involved.
 The nature and type of goods or services being exchanged.
 The frequency of trade between the partners to the exchange process.

- **The trade cycle has to support**:-

 Finding goods or services appropriate to the requirement and agreeing the terms of trade often referred to as search and negotiation.
 Placing the order, taking delivery and making payment i.e., execution & settlement of transaction.
 After sales activity such as warrantee, service etc.
 There are numerous categories of trade cycles depending on the factors outlined above and, for many transactions, further complicated by the complexities of international trade.

- **Three generic trade cycles can be identified**:-

1. Regular, repeat transactions between commercial trading partners (Repeat Trade Cycle).
2. Irregular Transactions between commercial trading partners where execution and settlement are separated (Credit Transactions)
3. Irregular transactions in once-off trading relationships where execution and settlement are typically combined (Cash Transactions)



- **Electronic Markets**:-

 It increases the efficiency of the market.
 It reduces the search cost for the buyer and makes it more likely that buyer will continue the search until the best buy is found.

 It exists in financial markets & they are also used in airline booking system.
 It is irregular transaction trade.

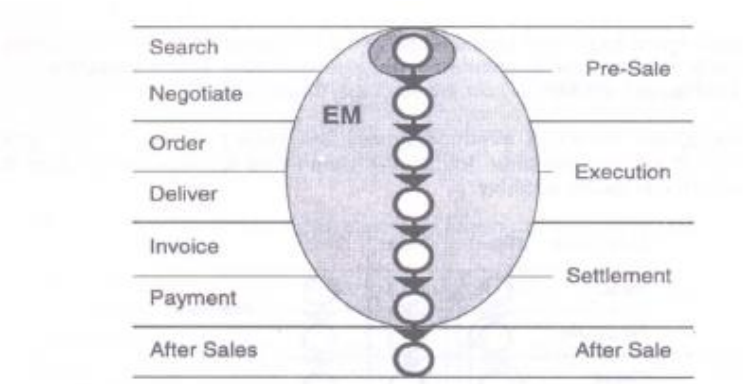


Fig. 1.3 Electronic Markets and Trade Cycle.

- **Electronic Data Interchange**:-

 It is used for regular repeat transactions.
 It takes quite a lot of work to set up systems.
 Mature use of EDI allows for a change in the nature of the product or service.

e.g. Applications are sending test results from the pathology laboratory to the hospital or dispatching exam results from exam boards to school.

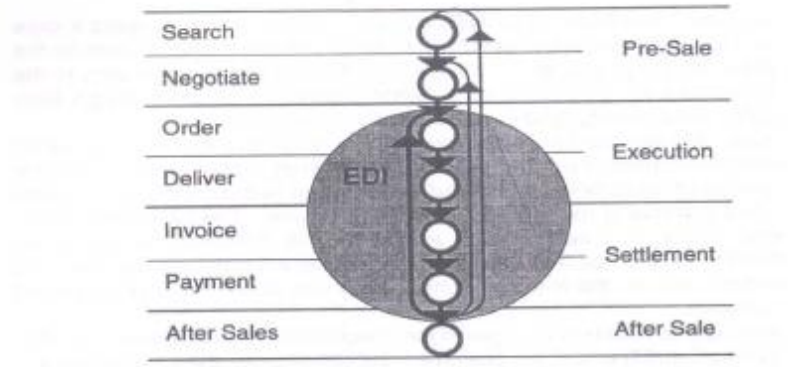


Fig. 1.4 EDI and the Trade Cycle.

- **Internet Commerce**:-

 <u>The first stage</u>

- Advertising appropriate goods and services.
- Internet sites offer only information & any further steps down the trade cycle are conducted on the telephone.

 <u>The Second stage</u>

- An increasing no. of sites offer facilities to execute & settle the transaction.

- Delivery may be electronic or by home delivery depending on the goods and services.

 The final stage

- After-sales service.
- On-line support & On-Line services.

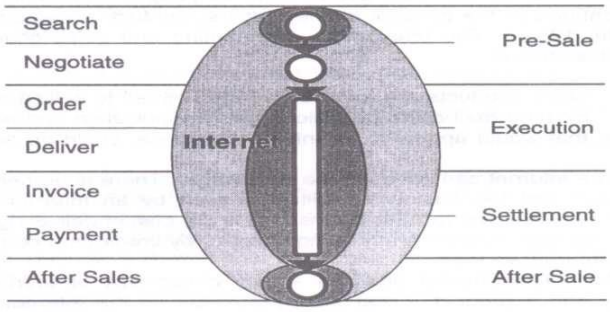


Fig. 1.5 Internet and the Trade Cycle.

Tools & Technologies for E-Commerce

- Electronic data interchange (EDI)
- Bar codes
- Electronic mail
- Internet
- World Wide Web
- Product data exchange
- Electronic forms
- **Electronic Data Interchange (EDI)**

 EDI is the computer-to-computer exchange of structured business information in a standard electronic format. Information stored on one computer is translated by software programs into standard EDI format for transmission to one or more trading partners. The trading partners' computers, in turn, translate the information using software programs into a form they can understand.

- **Bar Codes**

 Bar codes are used for automatic product identification by a computer. They are a rectangular pattern of lines of varying widths and spaces. Specific characters (e.g. numbers 0-9) are assigned unique patterns, thus creating a "font" which computers can recognize based on light reflected from a laser.

 The most obvious example of bar codes is on consumer products such as packaged foods. These codes allow the products to be scanned at the checkout counter. As the product is identified the price is entered in the cash register, while internal systems such as inventory and accounting are automatically updated.

- **Electronic Mail**

 Messages composed by an individual and sent in digital form to other recipients via the Internet.

- **Internet**

 The Internet is a global network of millions of diverse computers and computer networks. These networks can all "talk" to each other because they have agreed to use a common communications protocol called TCP/IP. The Internet is a tool for communications between people and businesses. The network is growing very, very fast and as more and more people are gaining access to the Internet, it is becoming more and more useful.

- **World Wide Web**

 The World Wide Web is a collection of documents written and encoded with the Hypertext Markup Language (HTML). With the aid of a relatively small piece of software (called a "browser"), a user can ask for these documents and display them on the user's local computer, although the document can be on a computer on a totally different network elsewhere in the world.

 HTML documents can contain many different kinds of information such as text, pictures, video, sound, and pointers, which take users immediately to other web pages.

 It is this ability to jump from site to site that gave rise to the term "World Wide Web." Browsing the Web (or "surfing the Net") can be a fascinating activity, especially to people new to the Internet. The World Wide Web is by far the most heavily used application on the Internet.

- **Product Data Exchange**

 Product data refers to any data that is needed to describe a product. Sometimes that data is in graphical form, as in the case of pictures, drawings and CAD files. In other cases the data may be character based (numbers and letters), as in the case of specifications, bills of material, manufacturing instructions, engineering change notices and test results.

 Product data exchange differs from other types of business communications in two important ways.

 First, because graphics are involved users must contend with large computer files and with problems of compatibility between software applications. (The difficulty of exchanging CAD files from one system to another is legendary).

 Second, version control very quickly gets very complicated. Product designs, even late in the development cycle, are subject to a great deal of change, and because manufacturing processes are involved, even small product changes can have major consequences for getting a product into production.

- **Electronic Forms**

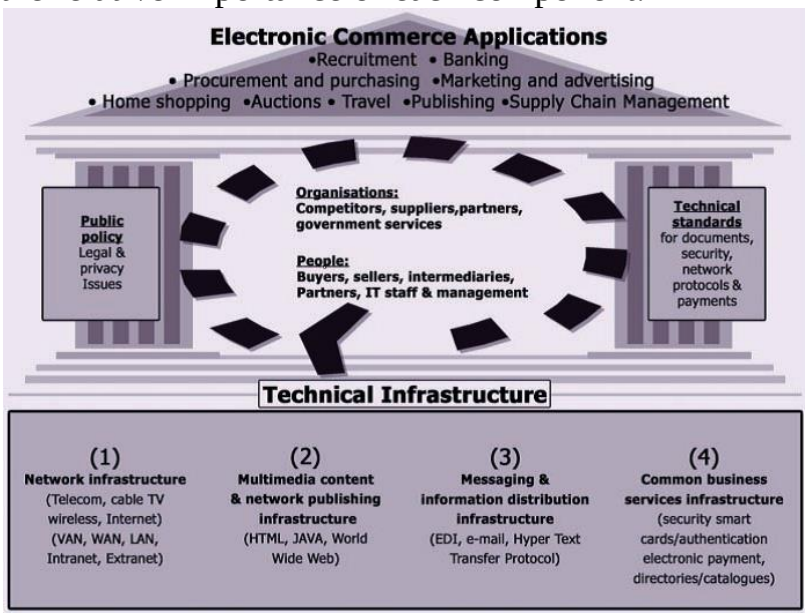
 Electronic form is a technology that combines the familiarity of paper forms with the power of storing information in digital form. Imagine an ordinary paper form, a piece of paper with lines, boxes, check-off lists, and places for signatures. To the user an electronic form is simply a digital analogue of such a paper form, an image, which looks like a form but which appears on a computer screen and is filled out via mouse, and keyboard.

 Behind the screen, however, lie numerous functions that paper and pencil cannot provide. Those extra functions come about because the data from electronic forms

are captured in digital form, thus allowing storage in data bases, automatic information routing, and integration into other applications.

Framework of E-Commerce

- This framework, first developed by Kalakota and Whinston, Professors of Information Systems and prolific authors on the subject, takes a holistic view and identifies the different components of business and technology that make up e-commerce. Using the analogy of the architecture of a building illustrated in Fig., they explain how the different components fit and interact together, emphasizing the relative importance of each component.



- Kalakota and Whinston use the analogy of a traditional transportation company to describe the complexity of the network and how the different components that make up the technology infrastructure are interlinked.

 The network infrastructure is like the network of roads that are interconnected and are of different widths, lengths and quality – for example, the Internet, local area networks, intranets. Network infrastructures also take different forms such as telephone wires, cables, wireless technology (such as satellite or cellular technology).

 The publishing infrastructure (including the WWW, Web servers) can be seen as the infrastructure of vehicles and warehouses, which store and transport electronic data and multimedia content along the network. Multimedia content is created using tools such as HTML and JAVA. This content can be very different with varying degrees of complexity similar to different vehicles travelling on the roads. For example, text only, or more complex is an application, such as a computer game, containing audio, video, graphics and a programme.

 Messaging and information distribution infrastructure are the engines and fuel, which transport the data around the network. Once the multimedia content is

created, there has to be a means of sending and retrieving this information, for example by EDI, e-mail, Hyper Text Transfer Protocol.

- Once content and data can be created, displayed and transmitted, supporting business services are necessary for facilitating the buying, selling and other transactions safely and reliably. For example, smart cards, authentication, electronic payment, directories/catalogues.

- The next components which facilitate and enable e-commerce and which are built on the foundations of technology are:

- Public policy, regulations and laws that govern issues such as universal access, privacy, electronic contracts and the terms and conditions that govern e-commerce.

- Universal agreement of technical standards dictate the format in which electronic data is transferred over networks and is received across user interfaces, and the format in which it is stored. This is necessary so that data can travel seamlessly across different networks, where information and data can be accessed by a whole range of hardware and software such as computers, palmtops, and different kinds of browsers and document readers.

- The interaction of people and organizations to manage and coordinate the applications, infrastructures and businesses are all necessary to make e-commerce work.

- All these elements interact together to produce the most visible manifestation of e-commerce. These applications include on-line banking and financial trading; recruitment; procurement and purchasing; marketing and advertising; auctions; shopping are just a few examples.

- This is a particularly useful framework for managers to understand the importance of technology and business, both within the organization and external to it, in the planning and development of any e-commerce or e-business solution.

E-Commerce Notes
Unit-1
Lecture-4

Electronic Data Interchange (EDI)

- **Electronic data interchange** (**EDI**) is the process used by organizations in order to transmit the data between organizations by electronic means. It is used to transfer electronic documents or business data from one computer system to another computer system, i.e. from one trading partner to another trading partner without human intervention.

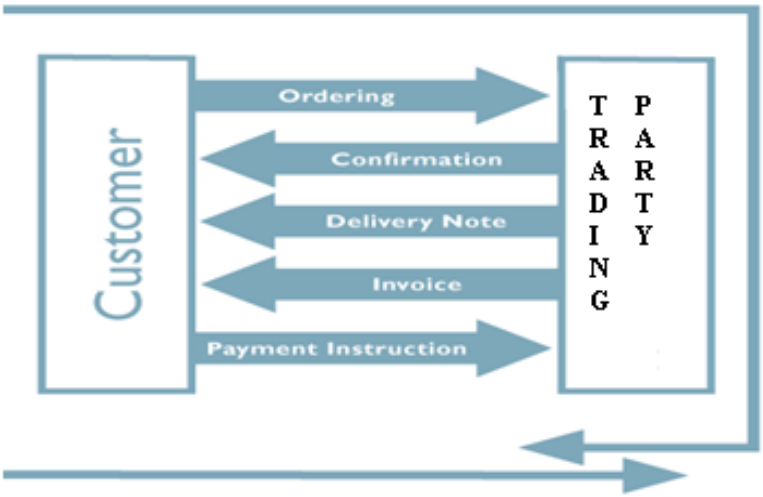


Fig. 8.1 Flow of messages

- Here, are two major parties i.e. Customer & Merchant,
- Customer firstly order for the required product. Trading party then give confirmation, Delivery note, Invoice & Acknowledgements for the product status. At the end, customer pays for the product.
- Here, We have shown the basic overview but EDI is somewhat complex. EDI is used by organizations for transactions that occur on regular basis to a predefined format.
- Organizations that send or receive documents between each other are referred to as "trading partners" in EDI terminology. The trading partners agree on the specific information to be transmitted and how it should be used.
- EDI is also known as paperless trading.
- EDI is basically-
- ***"The transfer of structured data, by agreed message standards, from one computer system to another, by electronic means."***

 <u>EDI has four elements, each of them essential to an EDI system</u>:

- **<u>Structured Data</u>:** EDI transactions are composed of codes, & short pieces of text. Each Element with a strictly defined purpose. Fore.g An order has codes for the customer & product & values such as quantity ordered.
- **<u>Agreed Message Standards</u>:** The EDI transaction has to have a standard format. The standard is not just agreed between the trading partners but is a general standard agreed at national or international level. A purchase order will be one of a number of agreed message standards.
- **<u>From one computer system to another</u>:** The EDI message sent is between two computer applications. There is no requirement for people to read the message or re-key it into a computer system. For e.g. The message is directly between the customer's purchasing system & the supplier's order processing system.
- **<u>By electronic means</u>:** Usually this is by data communications but the physical transfer of magnetic tape or floppy disc would be within the definition of EDI. Often networks specifically designed for EDI will be used.

Main Features of EDI:

- EDI's use structured formatted messages that are based on agreed standards - in this way the messages can be read by any system that understands the rules they are governed by. However, this is not always as simple as it seems, as there are also the provision of EDI translation software packages.
- Required to set up an interface between the company computer and the EDI sent/received document.
- EDI provides a relatively fast delivery of electronic documents from sender to receiver.
- EDI provides direct communication between applications, rather than between computers.
- EDI includes data management and networking capabilities, data processing, the efficient capture of data into electronic form, the processing and retention of data, controlled access to it, and efficient and reliable data transmission between remote sites.

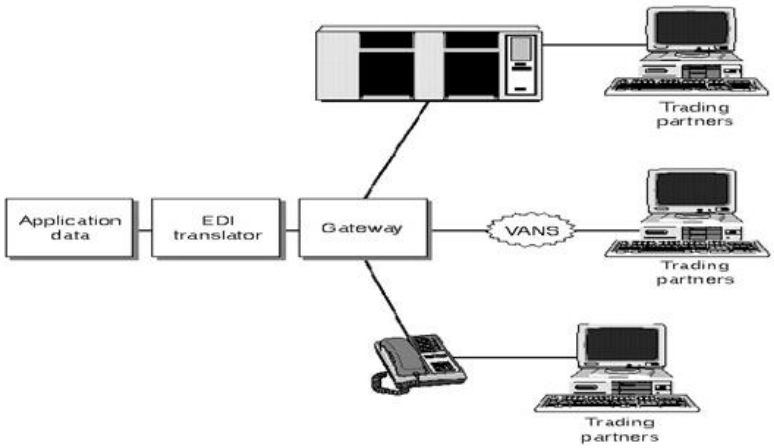
Benefits of EDI:

- **Reduced paperwork:** Even when paper documents are maintained in parallel with EDI exchange, e.g. printed shipping manifests, electronic exchange and the use of data from that exchange reduces the handling costs of sorting, distributing, organizing, and searching paper documents.
- **Cost cutting:** The use of EDI can cut costs. These include the costs of stationary & postage but these will probably be fully matched by the costs of running the EDI service.EDI and similar technologies allow a company to take advantage of the benefits of storing and manipulating data electronically without the cost of manual entry.
- **Reduced Errors:** Another advantage of EDI is reduced errors, such as shipping and billing errors, because EDI eliminates the need to rekey documents on the destination side. Keying an information into the computer system is a source of errors & keying paper orders into order processing system is no exception.EDI eliminates this source of errors. On the down side, there is no order entry clerk who might have spotted errors made by the customer- the customer will get what the customer asked for.
- **Faster Response:** With paper orders it would be several days before the customer was informed of any supply difficulty, such as the product is out of stock. With EDI the customer can be informed straight way giving time for an alternative product to be ordered or an alternative supplier to be used.
- **Improved funds transmission:** Due to this increased efficiency of non-paper accounts, cash flow will improve as electric fund transmission is able to begin much earlier than previously.
- **Improved Shipping Service:** Shipping is also improved as EDI provides quick and efficient information as it relies on barcode information to communicate. It is able to track inventory and eliminates the incidence of lost packages due to

their isolation from the larger shipping order. EDI greatly improves accuracy of data as it is all automated.

- **EDI payment:** Payment can also be made by EDI. The EDI payment system can also generate an EDI payment advice that can be electronically matched against the relevant invoices, again avoiding query & delay.

EDI System



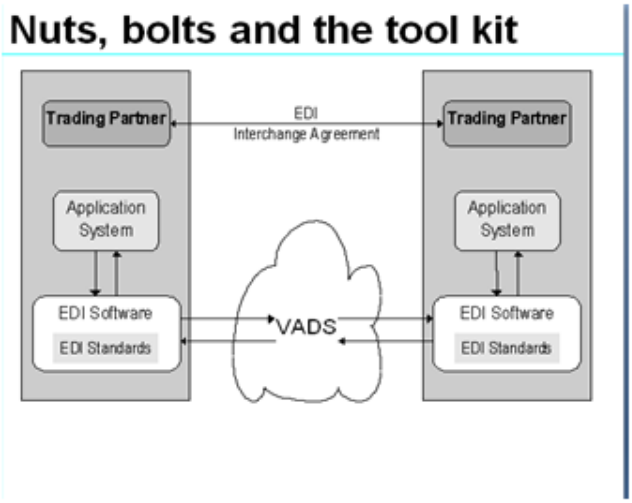
Difference between EDI & Email:

- EDI sounds similar to electronic mail (email), but is actually quite different. While email allow for free unstructured test messages to be sent from one computer to another (or multiple) computers, EDI supports structured business messages to be transmitted between partners. Previously these would have been hard copy documents or printed business documents. So rather than having documents pass from person to person, they go from computer to computer.

EDI: THE NUTS AND BOLTS

EDI Standards:

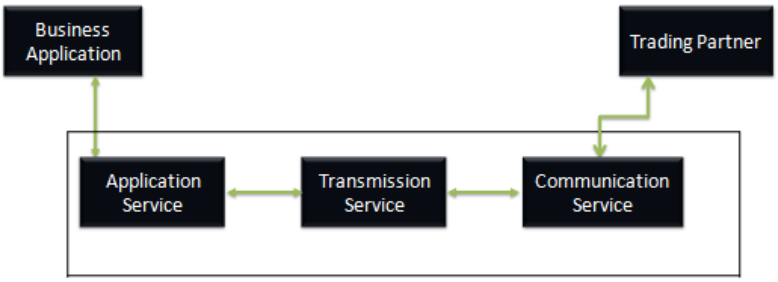
- At the heart of any EDI application is the EDI standard. The essence of EDI is the coding & structuring of the data into a common & generally accepted format.
- Documents sent via EDI can serve as input for a receiving a company's business application because they are formatted according to standards that stipulate where certain information should be located, such as where net total amount should appear on an invoice.
- These standards also define how individual pieces of information should be represented. For example, in the standards for an electronics industry purchase order, there are specific codes defined to identify the type of product or service being requested, e.g. PN (company part number), BY (buyers part number), VP (vendors part number), PW (part drawing), etc.



E-Commerce Notes
Unit-1
Lecture-5

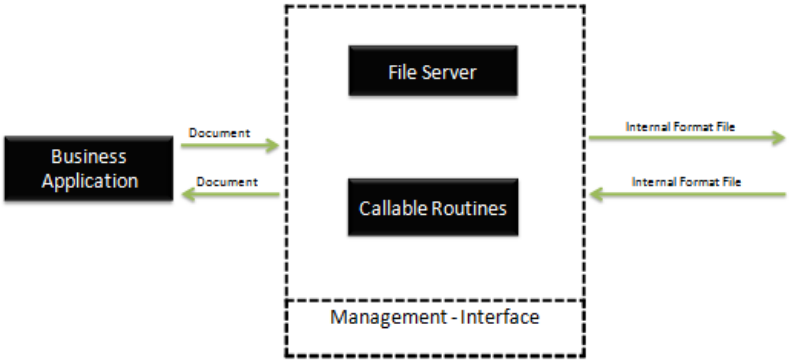
Components of EDI

1. Application service
2. Translation service
3. Communication service



1. **Application Services :-**

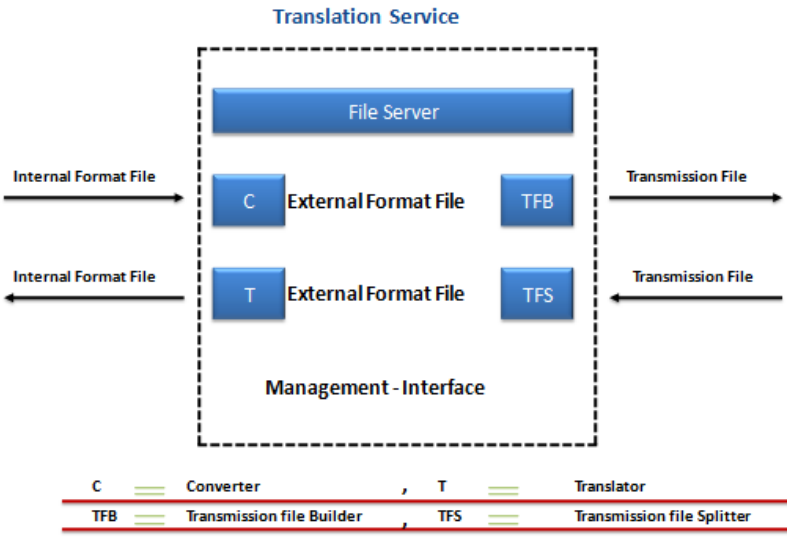
It provides the link between application and EDI. It allows you to send documents from an EDI system. The set of callable routine is used to transfer document from the business application into EDI document, destination can be either intra-company or to the external companies.



Application Service

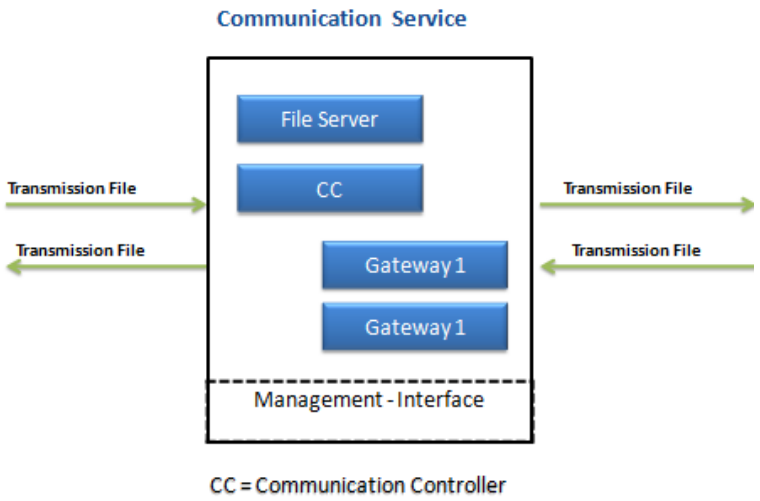
2. **Translation service:-**

Converts the outgoing documents from an internal format file to an agreed external format. Translates internal document from external format to EDI internal format file.



3. **Communication service:-**

The communication service sends and receives transmission files to and from the trading partners either directly or by using party service called a valued added network (VAN).



File Types

EDI creates following files as a document passes through the system:

1. **Internal format file (IFF):-**

It contains single document for single trading partner.

2. **External format file (EFF):-**

It contains same data as the internal format file translated into the appropriate standard document format.

3. **Transmission file:-**

It contains one or more document for the same trading partner. Documents of same format are packed into functional groups. The functional groups going to one trading partner are packaged into an interchanged set.

EDI software

1. *Translators:-*

   Every EDI sender and receiver should have EDI translator. It varies based on the computer on which it is going to reside. The computer may be a micro computer or a midrange or a mainframe. Translator reads the fixed length file and generates valid EDI standard and maintains control information.

2. *Application link software:-*

   Application link software is used to collect information from the business application and then it formats into fixed length computer file and passes it onto translators.

Types of EDI standards:

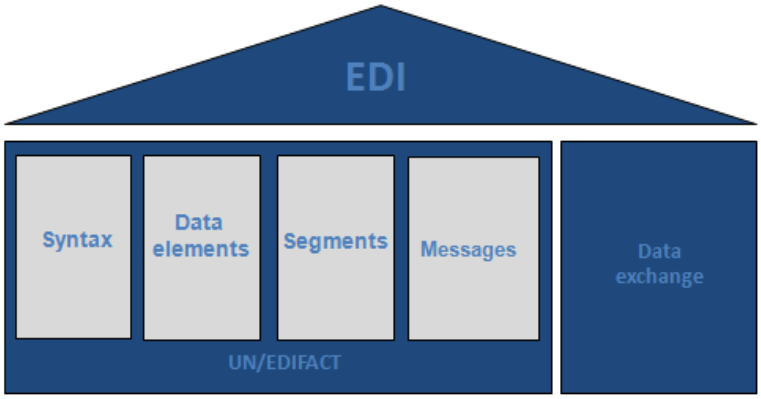
- **Proprietary standard** - EDI standard developed for a specific company or industry. This is also called a non-public or private standard.
- **Public standard** - EDI standard developed for use across one or more industries.

EDIFACT

- Electronic Data Interchange for Administration, Commerce, and Transport is the international set of EDI standards
- Became a UN standard in 1987
- Maintenance and further development is the responsibility of the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT)

- Includes syntax rules and implementation guidelines, message design guidelines, data elements, code sets, and other definitions
- Used for business-to-business (B2B) communication rather than business-to-consumer (B2C)
- Allows multi-country and multi-industry exchange

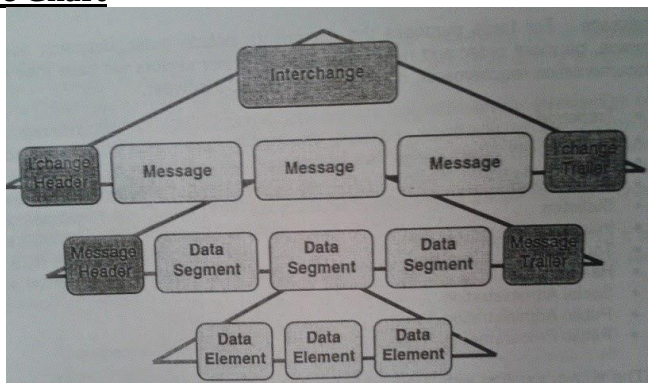
The four pillars of EDIFACT



- **Syntax**
- Rules for the definition of a message structure
- **Data elements**
- Smallest data unit
- Include codes & the values for items such as date & address code
- **Segments**
- Groups of related data elements
- **Messages**
- Ordered sequence of segments
- Defines a business transaction

- **United Nations/Electronic Data Interchange For Administration, Commerce and Transport (UN/EDIFACT) is the international EDI standard developed under the United Nations.**

EDIFACT Structure Chart

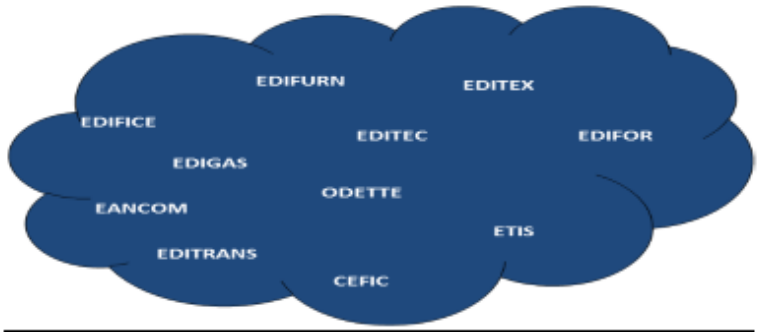


- **For EDIFACT each document type is referred to as a message. For trade purposes the documents include order, dispatch advice, invoice, payment order & remittance advice.**

Other sectors include their own documentation requirements, sectors using EDIFACT include:

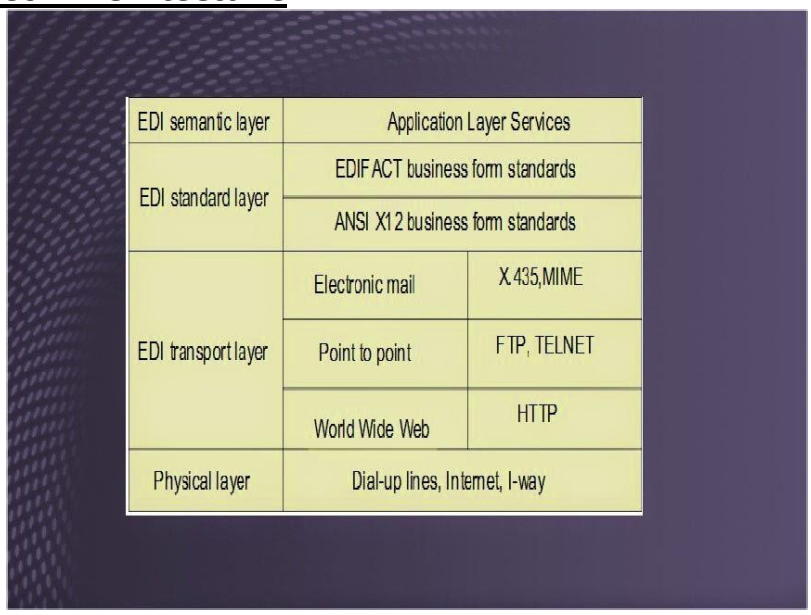
- Transport
- Customs
- Finance
- Construction
- Statistics
- Insurance
- Tourism
- Healthcare
- Social Administration
- Public Administration

EDIFACT subsets



E-Commerce Notes
Unit-1
Lecture-6

EDI Layered Architecture



EDI Semantic layer:-

 Describes the business application
 Procurement example
- Requests for quotes
- Price quotes
- Purchase orders
- Acknowledgments
- Invoices

 Specific to company & software used

EDI Standard Layer:-

 Specifies business form structure so that information can be exchanged it also influence the content at application layer.
 The most competing standards are:
- American National Standards Institute(ANSI)X12
- EDIFACT developed by UN/ECE, Working Party for the Facilitation of International Trade Procedures

EDI Transport Layer:-

 It corresponds with non electronic activity of sending business from one company to another company.

 It can send via postal service, registered and certified mail & email etc.

 Generally, EDI transport layer chooses email as the carrier service.

EDI Physical Layer:-

 It describes physical devices which are involved in transaction.

 Dial-up lines, Internet, Value-Added Networks etc.

EDI in India

EC/EDI Council of India:

Chairman: Secretary Department of Commerce

Secretariat: EC/EDI Division Department of Commerce
Udyog Bhawan, New Delhi - 110011

EC/EDI council is the apex body consisting of all the key government departments and representatives of trade and industry. It is responsible for laying down the policy frame work and direction for:-

- promotion and propagation of EDI and Electronic Commerce.
- creating awareness and education among the potential EC/EDI functionaries and users
- streamlining procedures and practices attending to legal issues
- human resource development
- any other issue connected with EDI and Electronic Commerce

India EDIFACT Committee:

Chairman: Additional Secretary Department of Commerce

Secretariat: EC/EDI Division Department of Commerce
Udyog Bhawan, New Delhi - 110011

The India EDIFACT Committee (IEC) is responsible for formulatin standards, streamlining the procedures in line with UN/EDIFACT and maintain liaison with UN/EDIFACT bodies.

To address all the information needed on different sectors and its interface with UN/EDIFACT standards following Message Development Groups are working –

- Ports Message Development Group under Indian Ports Association (IPA)
- Airports Message Development Group under Airports Authority of India (AAI)
- Financial Message Development Group under Indian Banks Association (IBA)
- Customs Message Development Group under Central Board of Excise & Custom (CBEC)
- Private Sector Message Development Group under Federation of Indian Export Organisations (FIEO)
- **Working Group:** The working group is responsible for motivating various functionaries in the government and ensure scheduled implementation of program.
- **Technical Assessment Group:** The Technical Assessment Group is responsible for assessing the messages developed by the various agencies for structure and syntax conformance, to review the Implementation Guidelines prepared by various agencies for the respective messages developed by them and to prepare and circulate the EDIFACT Message Directory.
- Chairman : Senior Technical Director, NIC Department of Commerce Secretariat : EC/EDI Division Department of Commerce Udyog Bhawan, New Delhi - 110011

Education and Awareness: The Department of Commerce has identified key areas where immediate attention was required such as user awareness and human resource development. For creating awareness in respect of EC/EDI, four organizations have been identified namely Federation of Indian Export Organizations (FIEO), All Indian Management Association (AIMA), National Informatics Centre (NIC) and Indian Institute of Foreign Trade(IIFT). The course contents for awareness and training programmes have been structured and programmes for various level of management have been devised. This Ministry also organizes EDICON (An international conference and exhibition on Trade Facilitation (TF/EC/EDI) every year along with special session for CEOs of top Indian companies.

VAN Service Providers: Department of Telecom has already licensed a number of operators for Value Added Network (VAN) services. National Informatics Centre (NIC) and Videsh Sanchar Nigam Limited(VSNL) are the two major companies/organizations providing high speed information highway for EC/EDI services within the country and connectivity to foreign networks. A number of other companies also recognized the emerging EC/EDI market and approached

the Department of Telecommunications, which is the licensing authority for (VAN) Value Added Network operations in India. Companies such as Global Electronic Commerce Services Ltd., Mahindra Network Services, Satyam Infosys, CMC Ltd., Manipal Control Data Electronic Commerce Systems etc.., have started EC/EDI services.

Co-ordinated EC/EDI implementation project

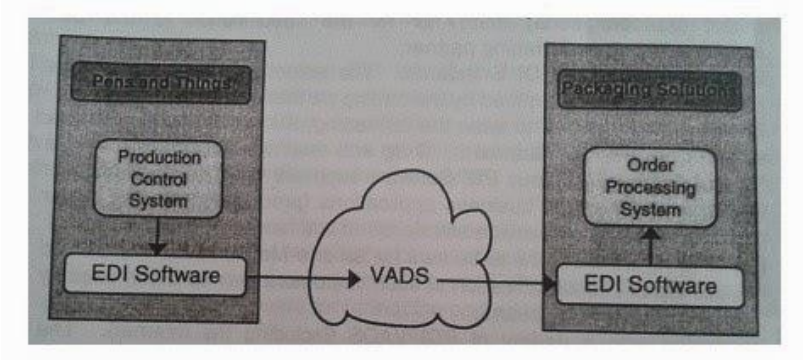
 To facilitate international trade a co-ordinated EC/EDI implementation project is underway in following departments/organisations :

- Customs
- Directorate General of Foreign Trade (DGFT)
- Apparel Export Promotion Council/Cotton & Textile Export Promotion Council etc.
- Port Trusts
- Airport Authority of India (AAI)
- Container Corporation of India (CONCOR)
- Reserve Bank of India (RBI)
- Scheduled Banks
- Airlines
- Indian Railways
- CHA/Freight Forwarders
- Export Promotion Organization

EDI IMPLEMENTATION

- The First Technical element of the EDI system is the EDI software. It is a complete suite of software for creating, transmitting, receiving, managing and tracking EDI documents. It contains the tools needed to fine-tune EDI invoicing, from EDI document editing, to document review, to document selection.
- The system design is comprehensive and can convert invoices, returns, change notices, statements, purchase orders, and title catalogues into the EDI format.
- If pens & things is to send an order from its production control system to packaging solutions it needs to code that order into the agreed EDI standard &'squirt' it into the chosen VADS. To pickup the order at the other end, packaging solutions has a similar need to extract the data from the network & to decode the data from EDI message into its order processing system. The coding/Decoding of EDI messages & interfacing with VADS in normally achieved using EDI software as shown in Fig.

Sending an order using EDI software



- Technically EDI comes down to imports/exports to/from your system and some data communication. It is good practice to keep this import/export as simple as possible, and to concentrate on the impact of EDI on your system and organization. You will want ONE import/export in your system (for each information flow).You don't want to handle all the EDI details in the import/export module, like you don't want to handle the logic of printer drivers in your application.

E-Commerce Notes
Unit-1
Lecture-7

EDI Enabled Procurement Process

PROCUREMENT

- Procurement is the process whereby companies purchase goods and services from various suppliers. These include everything from indirect goods like light bulbs, uniforms, toilet paper, and office supplies, to the direct goods used for manufacturing products.
- Procurement also involves the purchase of temporary labor, energy, vehicle leases, and more. Companies negotiate discount contracts for some goods and services, and buy others on the spot. Procurement can be an important part of a company's overall strategy for reducing costs.
- Historically, the individuals or departments responsible for purchasing a company's goods and services relied on various methods for doing so. The most basic included placing orders via telephone, fax, or mail.

E-PROCUREMENT

- Electronic procurement methods, generally referred to as e-procurement, potentially enable the procurement process to unfold in a faster, more efficient manner, and with fewer errors. These methods include electronic data interchange (EDI), online marketplaces or e-marketplaces, and various blends of the two.
- EDI deals more with the way information is communicated during procurement than it does with the act of linking buyers and suppliers.

- By definition, EDI is the electronic exchange of business information—purchase orders, invoices, bills of lading, inventory data, and various types of confirmations—between organizations or trading partners in standardized formats.
- EDI also is used within individual organizations to transfer data between different divisions or departments, such as finance, purchasing, and shipping. Two characteristics set EDI apart from other ways of exchanging information.
- First, EDI only involves business-to-business transactions; individual consumers do not directly use EDI to purchase goods or services.
- Secondly, EDI involves transactions between computers or databases, not individuals. Therefore, individuals sending e-mail messages or sharing files over a network does not constitute EDI.
- EDI can occur point-to-point, where organizations communicate directly with one another over a private network; via the Internet (also known as open EDI); and most commonly, via value-added networks (VANs), which function like telephone lines by allowing for the transfer of information.
- In the early 2000s, although many companies still relied on VANs, the Internet was playing a larger role in EDI. It is possible for companies to translate the files used during EDI and send them to another company's computer system over the Internet, via e-mail, or file transfer protocol (FTP).
- Because it is an open network and access is not terribly expensive, using the Internet for EDI can be more cost effective for companies with limited means.
- It has the potential to provide them with access to large companies who continue to rely on large, traditional EDI systems.
- The low cost associated with open EDI also means that more companies are likely to participate. This is important because the level of value for participants often increases along with their number.

E-procurement tools and applications:

Some e-procurement tools and applications include:

- Electronic systems to support traditional procurement
- EDI (electronic data interchange)
- ERP systems
- Internet as a support or complement to traditional procurement
- Electronic mail (e-mail)
- Web enabled EDI
- Extensible markup language (XML)
- World wide web (www)
- Internet tools and platforms that replace traditional procurement

EDI (Electronic Data Interchange)

- EDI is an application whereby electronic messages can be exchanged between computer programs of two separate organizations. Some features of EDI include:
- Messages are exchanged in groups, known as batches.

- Messages can automatically be sent, transmitted and stored between computers without retyping or keying data.
- EDI has to be implemented by each pair of organizations (sender and receiver) who wish to use it. This means that the implementation costs of EDI are relatively high.
- EDI is mostly used where the messages exchanged concern such matters as orders, confirmations, transport information and invoicing.

- EDI traditionally runs on so-called, "Value Added Networks", which are closed networks (unlike open networks like the Internet).
  The figure below illustrates the categories of electronic communication exchange between people and computers:-

Communication Party 1 / Communication Party 2	Person	Computer Programme
Person	Email	World Wide Web
Computer Programme	World Wide Web	Web enabled EDI / XML

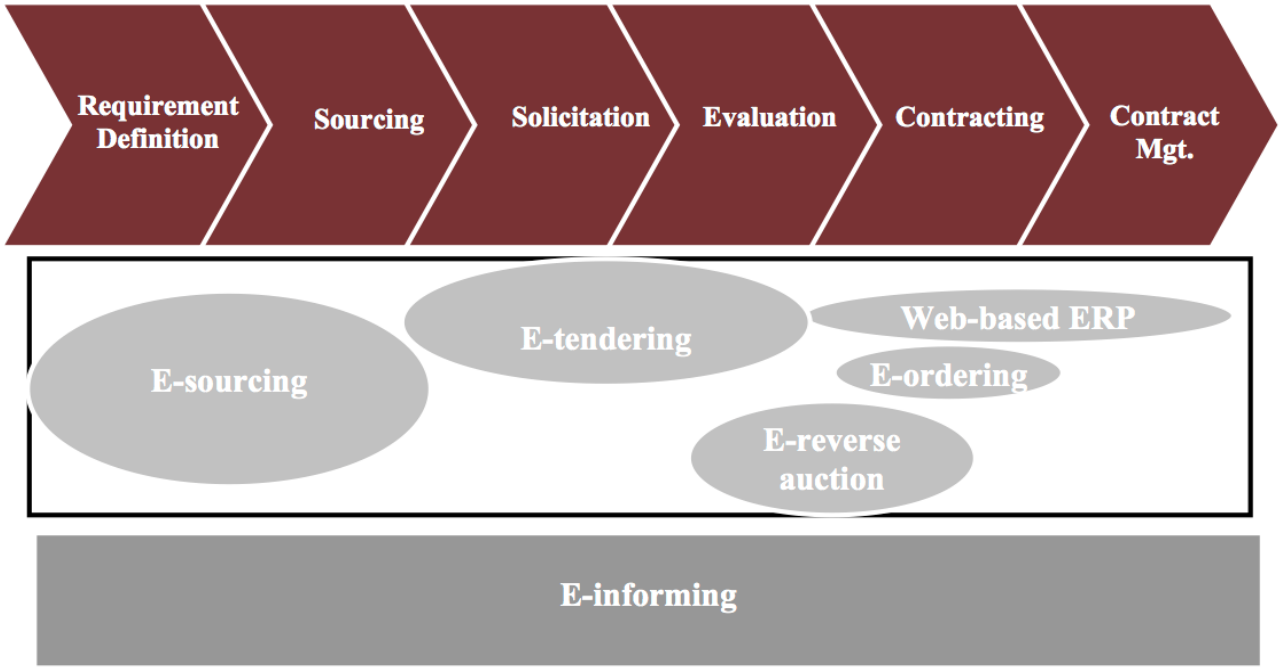
Internet tools and platforms that replace traditional procurement: Some internet tools and platforms that replace traditional procurement include:

- E-sourcing
- E-tendering
- E- auctioning
- E-ordering and web-based ERP
- E-informing
- **E-Sourcing:** E-sourcing supports the specification phase; it can be used to pre-qualify suppliers and also identifies suppliers that can be used in the selection phase. For suppliers the benefit is: "marketing" and for the buying organizations the benefit is facilitating the sourcing of suppliers. The UN Global Market Place (UNGM www.ungm.org) is an example of an E-sourcing tool.
- **E-tendering:** E-tendering supports the selection stage and acts as a communication platform between the procuring organization and suppliers. It covers the complete tendering process from REOI via ITB/RFP to contracting, usually including support for the analysis and assessment activities; it does not include closing the deal with a supplier but facilitates a large part of the tactical procurement process. It results in equal treatment of suppliers; transparent selection process; reduction in (legal) errors; clear audit trial; more efficiency in

the tactical procurement process and improved time management of tendering procedures. Some UN organizations such as UNDP-IAPSO and UNHCR have used E-tendering in the formulation of long-term agreements for vehicles, tents, motorcycles and pharmaceuticals through an in-house developed tendering portal.

- **E-auctioning:** E-auctioning supports the contract stage. It enables the closing of a deal with a supplier if parties agree on price. They operate with an upward or downward price mechanism e.g. e-auctioning with upward price mechanism for the selling organization and e-reverse auctioning with a downward price mechanism for the buying organization. They can be made in accordance with traditional ITB/RFP. They are internet based using open or closed systems.
- **E-ordering and web-based ERP:** E-ordering and web-based ERP is the process of creating and approving procurement requisitions, placing purchase orders, as well as receiving goods and services ordered, by using software systems based on the Internet.
- **E-informing:** E-informing is not directly associated with a stage in the procurement process; it is the process of gathering and distributing procurement information both from and to internal and external parties using Internet technology.

E-procurement in the procurement cycle: The figure below shows the six forms of e-procurement plotted in the procurement process



Each of these forms can be explained as follows:

- E-sourcing supports the specification phase; it identifies suppliers that can be used in the selection phase.
- E-tendering supports the selection phase; it facilitates the REOI and ITB/RFP activities, usually including support for the analysis and assessment activities.

 E-reverse auctioning supports the contract phase; it enables closing a deal with a supplier;
 E-ordering and web-based ERP is the process of creating and approving procurement requisitions, placing purchase orders, as well as receiving goods and services ordered, by using a software system based on the Internet.
 E-informing is not directly associated with a phase in the procurement process; it is the process of gathering and distributing procurement information both from and to internal and external parties using Internet technology.

E-procurement strategy – costs, benefits and risks

The following costs and benefits as identified by de Boer, Harink et al. (2002), can be influenced by e-procurement:

 The cost of expenditure on goods/services related directly to the production/service delivery.
 The cost of non-production of goods and services.
 The cost of operational procurement activities – e.g., requisitioning, ordering, expediting and administrative support.
 The cost of tactical procurement activities – e.g., formulating specifications, selecting suppliers, negotiating with suppliers, contracting, disposals etc.
 The costs of strategic procurement activities – e.g., spend analysis, transaction analysis, market analysis, planning, developing procurement policies etc.
 Internal benefits arising from investments in particular inter-organizational relationships.
 The contribution of investments in particular inter-organizational relationships to revenues.
 These costs and benefits should be assessed in relation to each e-procurement tool. While it is usually assumed that e-procurement will automatically deliver benefits, the actual benefits will depend on many factors including: cost of required investment, ability to convert associated savings to cash, nature of the procurement process being automated, particular supply market and the extent to which the organization supports its implementation

E-Commerce Notes
Unit-1
Lecture-8

Web Based E-Commerce

- Only a few years ago, businesses encountered major difficulties in delivering online information and applications even to their own employees, especially across geographically dispersed areas and to remote users. Today, businesses can

easily deliver information to employees, customers, partners, and the public at large, regardless of location. Many observers point to the Web as the catalyst for this change.

- While many of us use the Internet on a daily basis, few of us have a clear understanding of its basic operation. From a physical standpoint, the Internet is a network of thousands of interconnected networks.

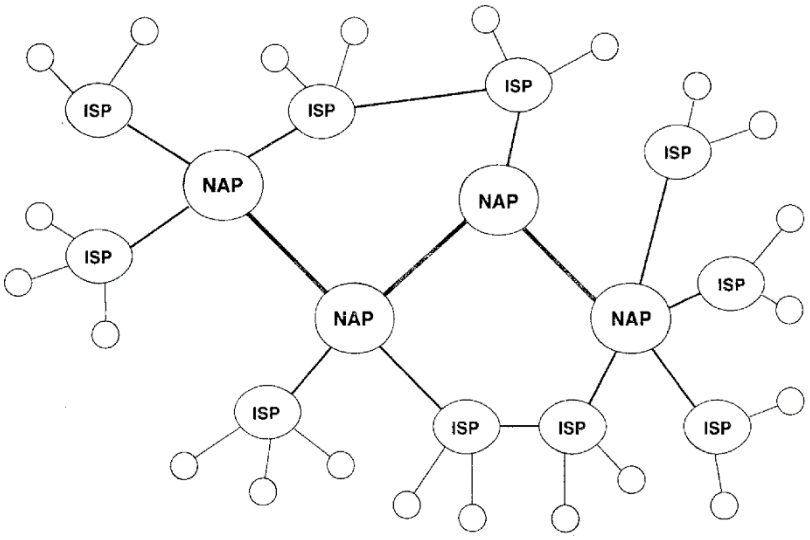
  Included among the interconnected networks are:

  (1) The interconnected backbones that have international reach;

  (2) A multitude of access/delivery sub networks and

  (3) Thousands of private and institutional networks connecting various organizational servers and containing much of the information of interest.
- The backbones are run by the **network service providers (NSPs),** including companies like MCI, Sprint, UUNET/MIS, PSINet, and BBN Planet. Each backbone can handle over 300 terabytes per month.
- The delivery sub networks are provided by the local and regional **Internet Service Providers (ISPs).** The ISPs exchange data with the NSPs at the **network access points (NAPs).** Pacific Bell NAP (San Francisco) and Ameritech NAP (Chicago) are examples of these exchange points (Minoli and Minoli 1998).

  The following Fig. shows a high-level view of the interconnections among the ISPs, NAPs, and the backbones



- When a user issues a request on the Internet from his or her computer, the request will likely traverse an ISP network, move over one or more of the backbones, and across another ISP network to the computer containing the information of interest.
- The response to the request will follow a similar sort of path. For any given request and associated response, there is no preset route. In fact, the request and response are each broken into packets, and the packets can follow different paths.
- The paths traversed by the packets are determined by special computers called **routers.** The routers have updateable maps of the networks on the Internet

that enable them to determine the paths for the packets. Cisco (www.cisco.com) is the premier provider of high speed routers.

Choosing the right format for Website

Essential Characteristics of a Good Business Site:

1. Easy Navigation is a must-have on any website. Visitors should be able to easily find the information they are looking for, and fast. Think about your own experience. How many times have you been to a website, took a few seconds to look around, couldn't figure out what the purpose of the website was, and just left? Put important information on multiple pages, clearly label links, and organize your site. Put yourself in a visitor's shoes and try to think about what information they would want and where they would look for it.

2. A Call to Action takes the purpose of your site to the next level. For example, if you want to use your site to drive sales, encourage people to check out your web store by placing links to the store's page in eye catching places, or maybe even offer them a discount. Or is your goal to build relationships with your customers? Try giving them an incentive to become a member on your site or to sign up for a free newsletter. Giving freebies is a great way to get a visitor's attention and to get them to take action according to your purpose.

3. Attractive Design is a no brainer. Visitors won't bother with your site if they can't make heads or tails of it. Make sure your site includes a great header that captures a user's attention and some eye-catching graphics. *Don't overdo it, though!* Having too many graphics or animations may distract the visitor from your content. You also don't want your site to seem too uncoordinated and "overdone". Another design note: make sure your content is easy to read. Visitors get turned off when the font colors and size are too hard to read. Make sure that when you write your content, you format it for readability, too. Make use of line breaks, bold words, and bullet points to make sure your visitors can skim through easily.

4. Sticky Content is the meat of your website. The content on your web pages determines the quality of your website. So what do we mean by "sticky content"? This is a phrase that describes great content that gets visitors to spend more time on the website or gets them to return. So how do you get your content to become "sticky"? You want to make sure that the content on your site holds value for your visitors. Try to provide useful information or interesting points of view. Plainly stated, if you have genuinely interesting and valuable information on your site, people will value your site and come back again.

5. Credibility is the key to doing business online. The internet can be a dangerous place full of scams, viruses, and shady dealings. A visitor will not do business with you if they do not feel that they can trust your site. So how do some sites seem more credible than others? For the most part, along with site design, it is the attention to detail. Scammers are often looking for a quick buck, so they do they put very little effort into their sites. There are small signs that visitors look for

when they determine credibility. Some of these signs include a unique domain name (ex: www.thisbiz.com), an email address that coincides with that domain name (ex: john@thisbiz.com), and maybe even a toll free number. All of these things show that the business is invested in what it does, and makes the visitor feel more comfortable about doing business with it. You can obtain all of these credibility boosters easily through Webs!

6. Mobility is becoming more and more essential as time goes on. Some experts say that mobile internet browsing will be bigger than desktop internet browsing by as soon as 2015. Mobile browsing and mobile online shopping are some of the biggest online trends, so needless to say, it is important to be ahead of the curve and have a website that can be easily accessed on a mobile device. Its okay if you don't have the know-how to do this because Webs has a Mobile App that makes it easy: just activate it on the app page, make a few design selections and you are good to go. Our mobile app was just updated with a bunch of new features, making it a must-have on any site.

Web Store and Horizontal /Vertical portals

- A Web Portal is a website which works as a single source for different information on a particular domain. It is a useful access point which helps the users to go easily from one page to another while navigating for information which they are in search of.
- Web Portal gives a list of information arranged well for the accessing purpose of the users. Placing the right amount of keywords in the pages at the right positions also can make a difference to your website traffic. Ultimately what matters in content development is to understand and provide what customers search for the most online.
- Portals have information stored which links to various topics like business, new, finances, travel, entertainment, shopping and so on. The popular portals on the internet are Yahoo!, AOL and Google. These portals can be termed as personal portals, as it stores the history data, emails and profile information of the user.
- High resolution images and big files of videos may be required to attract people but it'll be of no use if the page takes long time to load. An ideal portal depends mainly on search and navigation, notification, personalization, task management, work flow and collaboration.

Enterprise portal development can be divided into two divisions –

- Horizontal Enterprise Portals or Mega Portals or HEPs
- Vertical Portals or Vertical Enterprise Portals or VEPs.

Horizontal Enterprise Portals (HEPs)

A Horizontal Portal is a website that is public and helps to give its users all the necessary services they are in need of. Examples of horizontal portals or HEPs are NetCenter and MyExcite. Horizontal Enterprise Portals include chat groups, horoscopes, weather, stock prices, news and shopping.

These send requests to users for making their page the first page one sees while using the web. These personalizes the page one sees by selecting the city one

chooses for knowing the weather, selecting the new sources and stocks one likes to be displayed on the page and alter the web page appearance.
Thus one is able to build multiple stock portfolios and see the updated valuations very often. It has to be noted that if one access HEP from another computer, it loses all the personalization characteristics.
HEPs does not give any kind of information related to any organizations, as they are not connected to any data sources of any organization other than their own. It delivers access to all the web information one needs on one's own organization.

Vertical Enterprise Portals (VEPs)

Vertical Enterprise Portals or VEPs deliver information related to any organization. A Vertical Enterprise Portal is an enterprise portal which is used in a specific department for particular business functions like accounting, customer service or e-commerce. When a user logs to a VEP, a customized portal page is produced. This is linked to the user who is logged on to.

E-Commerce Notes
Unit-1
Lecture-9

Steps in setting up Business on Internet

1. Create a great site: This is No. 1 for a reason. You have to have a great-looking, intuitive, easy-to-navigate site if you are going to be taken seriously by potential e-customers. Your site must look professional. Pictures and content must load quickly. There can be no dead links. Have a robust "About" page.
The good news is that it is easy and affordable to create a great site – look for online hosts that have pre-made templates you can customize.
Web surfers who come to your site will judge it in about three seconds. That's all you've got. You better impress them the moment they hit it.
2. Pick your products: You should try to find the right product at the right price, he will make a profit. Where do you find great, inexpensive products? It depends on what you plan to sell. It may be a matter of spending weekends picking up some good, cheap stuff. If you want a more formal arrangement, there are wholesalers and distributors for almost any product you need.
3. Have an online catalog or store: When you shop online, there is usually a catalog of products to choose from: Tiny pictures with product descriptions. That is what you have to do. Happily, you do not have to create this from scratch. Your e-commerce site host (see below) will offer a store creation tool, with point-and-click ways to add products, pictures, and descriptions.

4. Have the ability to process payments: This issue is two-fold: The financial ability to process credit card payments comes when you have a merchant account. Search for that term online. The physical ability to process such payments is, again, something your host will offer. Search for "online merchant services" or "E-commerce hosting."

5. Market and promote your site: All these steps are important, but this one may be a little more important. People have to find your site. No matter how nice it looks or how cool your products, if no one knows about the site, it is a waste of time, money, and effort.

Master search engine optimization (SEO) techniques. Engage in viral marketing. Tweet. Have a Facebook fan page. Try pay-per-click. Advertise.

6. Fulfillment: You have to deliver what you sell, on budget and on time. Don't forget to add the cost of shipping to your prices.

7. After-sales support: How will you handle returns? What should you upsell? Support is the difference between a one-time sale and creating a customer for life.

What is a Domain Name?

- A domain name is a unique name for a web site, like w3schools.com.
- Domain names must be registered. When domain names are registered, they are added to a large domain name register. In addition, information about the web site, including the IP address, is stored on a DNS server.
- DNS stands for Domain Name System. A DNS server is responsible for informing all other computers on the Internet about the domain name and the web site address.

Registering a Domain

Domains can be registered from domain name registration companies.

These companies provide interfaces to search for available domain names, and they offer a variety of domain name extensions that can be registered at the same time.

Choosing a Domain Name

- Choosing a domain name is a major step for any individual or organization.
- New domain name extensions and creative thinking still offer thousands of excellent domain names!
- When choosing a name, it is important to consider the purpose of a domain name, which is to provide an easy way to reach your web site.

The best domains have the following characteristics:

- **Short** - People don't like to type! A short domain name is easier to type, read, and remember.
- **Meaningful** - A short domain is nothing without meaning, 34i4nh.com is not easy to enter or to remember. Select a domain that relates to your site in a way that people will understand.
- **Clear** - Clarity is important when selecting a domain name. Avoid a name that is difficult to spell or pronounce.

- **Exposure** - Names that are short and easy to remember are an asset. In addition to visitors, also consider search engines. Search engines index your site and rank it for relevance against terms people search for. In order to maximize your sites exposure, consider including a relevant search term in your domain. Of course, only consider this if it still maintains a short, clear and meaningful domain name.

Sub Domains

- Most people are unaware that they use sub domains daily. The famous "www" of the World Wide Web is an example of a sub domain. Sub domains can be created on a DNS server, and they don't need to be registered with a domain name registrar, of course, the original domain name needs to be registered before a sub domain could be created.
- Examples of sub domains used on the internet are http://store.apple.com and http://support.microsoft.com.
- Sub domains can be requested from your web hosting provider.

False Domain Names - Directory Listings

- Some providers will offer you a name under their own name, like: **www.theircompany.com/yourcompany/** This is not a real domain name, it is a directory - and you should try to avoid it.
- Directory domains are not desirable, especially for companies.
- Typically, directory domains are used for personal web sites and free web sites provided by an ISP, you may have seen **www.theircompany.com/~username** as an address.
- Competition in domain name registration has resulted in a dramatic decrease in pricing, so domain sharing is not common, since it is possible to register a domain name for only $15 per year.

Expired Domains

- Another source for domain registrations is expired domains.
- When you register a domain, think of it as a rental, assuming there are no legal or trademark issues with the domain name, you are free to use it as long as you continue to pay the yearly fee (you can now register in advance as many as 10 years). Some people register domains as speculators, hoping that they can later sell them, while others may have planned to use a domain and never had the time. The result is that domains that were previously registered become available again.

Use Your Domain Name

- After you have chosen and registered your own domain name, make sure you use it on all your web pages, and on all your correspondence, like e-mail and traditional mail.
- It is important to let other people be aware of your domain name, and to inform your partners and customers about your web site.

Web Authoring Tools

Web authoring tools are used to create web content, and cover a wide range of software programs. The programs include word processors, desktop publishing programs, webpage builders, website management systems and HTML editors. Any software program that can be used to create content that can be uploaded and viewed on the Internet or intranet network systems is considered a web authoring tool.

- **Word Processors**

  Word processors such as Microsoft Word, WordPerfect or OpenOffice Writer are some of the most basic types of web authoring tools available. Word processors contain an option that allows users to create web pages from text documents. Users type in content using a keyboard and the processors convert the documents into standard HTML markup and save the document as a .txt file. The .txt file can be uploaded directly onto a server to create a quick and easy web page.

- **Desktop Publishing**

  Desktop publishing programs can be used to create hard copy content, such as magazines or newspapers, or used as a web authoring tool. The programs feature word processors to create instantly written web content combined with advanced web authoring options, such as page layout and style elements.

  Desktop publishing programs create virtual pages of web content that can be linked together. Users can add multimedia to the pages, such as video, graphics or audio files. The programs convert the pages to HTML and CSS sheets that can be uploaded to the Internet.

- **Website Management Systems and Webpage Builders**

  Website management systems, or hosting sites, are systems that allow users to upload and manage their web pages. These systems usually offer their users many web-authoring tool options to create and maintain their web pages. Tools can include webpage builders, shopping systems, audio/visual editors and domain options.

  Many web hosting sites offer their customers free webpage builders that help them to create web pages or entire websites. The builders incorporate many web authoring tools, including word processing, graphic editing, templates and layout schemes. Webpage builders have two main editing options: HTML or a non-HTML interface. Users who have limited HTML knowledge can use the non-HTML interface to drop and drag items to create layouts and use the text option to type in content.

- **HTML Editors**

  HTML editing programs are some of the most powerful web authoring tools, and are mainly used by professionals to create commercial web pages. Most HTML editors are similar to web-page builders in offering users HTML or non-HTML interfaces. The non-HTML interface allows the user to see how the web page will look when it is uploaded to the Internet. HTML editors can be used to create basic HTML markup like a word processor, or can create more advanced language,

such as CSS, JavaScript or XML. Most of the work is performed using a built-in text editor.

The text editors feature an array of functions besides basic content input, such as linking, spell check, accessibility features and code formatting. Text editors create the HTML markup as the user is working with the editor, which allows for faster editing of visual layout.

HTML editors feature HTML validation checkers that will run through a web page and check for markup errors and accessibility validation issues. Most of the other web authoring tools don't offer this option; web authors only become aware of a problem after the web page is on the Internet.

Website hosting considerations-own versus rented server

Should You Own Your Servers or rent Servers?

- Technology buyers today have more choices than ever before. Hardware and software can be purchased, leased or rented. Software can deployed "on-premise" or accessed "on demand" using cloud computing offerings, where you pay a monthly fee for software access. Each of these options have their place.
- In spite of the trend toward cloud computing, many companies are still buying servers and software to run their business. In fact, most businesses will deploy one or more servers in-house for needs which are not effectively met by in-cloud services.
- Before you go out and buy your own servers, consider your options. A server purchase requires an upfront investment, but over the course of several years, you may meet your business objectives much more effectively by buying servers and software vs. using cloud computing or co-location (data center rented server space) options
- When you use cloud computing, you're also usually limited to standard options. Extensive software customizations are normally installed on your own server. For example, if you want store documents among your team "in the cloud" using Microsoft Share Point Online that's easy. But if you want to customize SharePoint extensively, or use it as your external website, a traditional on premise SharePoint implementation is going to be the right choice for you.
- Is your best option to own servers? After you look at the functionality you require, be sure to take into consideration these hidden expenses of owning servers in-house so that you can create an apples-to-apples comparison with your technology decisions

 Server maintenance. No one has yet invented a "set it and forget it" server. Servers require regular updates and maintenance to keep up with changes in technology and to respond to malware threats. The operating system and software applications running on the server also require updates.

 Server administration. Who is going to run your updates and regularly perform maintenance on your servers? Here you have several options. You can hire an in-house IT administrator. You can hire an IT consultant. Or you can hire a managed

service provider who will take care of the routine work for a set monthly price. The option you choose should be based on your IT workload.

- **Server rent.** Part of your office rent goes toward providing a secure location for your server. Because servers consume increased energy, sometimes they require a dedicated room with temperature control. You don't want your employees to freeze just to keep your servers cool. Contact your hardware provider about estimated energy consumption costs.
- **Server backups and redundancy.** A server contains your company's most valuable information. When your server is located in your office, you have to take extra steps to protect your data from being damaged or destroyed. This commonly means creating off-site backups and testing to make sure that the recovery process works. Some companies also invest in server redundancy, so that if one server crashes, the other one immediately takes over.
- **Server utilization.** Companies typically buy more server than they currently need so they have room for growth. A little extra capacity is necessary, but too much will cost you. Develop a hardware plan so that you don't overbuy up front. Instead, scale up as needed. If your servers don't have enough to do, you're wasting capacity and paying for something that you don't use or need.
- Beyond the costs of the hardware itself, be sure to factor in how equipped you are to respond readily to server needs. When email or other critical business applications go down, someone needs to be available to diagnose and fix the problem. It's wonderful to have a wealth of options. Just be aware of the price tag and capabilities that come with each option.

Online Promotion tools & techniques

Online Promotional Tools

- Feedback Forms
- Bookmarking Content
- Daily Give-Away,
- Coupon
- Contests Surveys
- Awards/Testimonials
- Online Chat
- Tours

- ***Feedback Forms*** - What better way to find out what people think of your company than to solicit their opinion. Using customer feedback you can improve your site and provide better service to your customers. Using feedback forms also shows your customers that you are interested in what they have to say, and provides an opportunity to build relationships with them. For instance, you may send out an email thanking a particular customer for bringing an issue to your attention and follow-up with a coupon to show your appreciation. The disadvantage with a feedback form is the type of information people provide or the questions they may ask. If customers cannot find answers on your site, they may resort to using

the feedback form. To receive targeted feedback, it is useful to develop an online form for customers to complete that leads them through the feedback process.

- ***Content*** - Content is a strong driver for encouraging repeat visits by customers, particularly when it is fresh, timely, and gives customers a reason to visit regularly. For example, perhaps you have a 'Tip of the Day' or a regular visit by an 'expert' well-known in your field of business who provides online advice. Content that is useful for your visitors and will enable them to leave with new knowledge will attract them to your site, and encourage them to check back regularly.
- ***Daily Give-Away/Coupons/Contests*** - Sites that offer regular promotions such as a 'give-away', coupons and contests are in a solid position to capture a regular audience. While the promotion acts as the driver that attracts customers to visit initially, it provides an opportunity to showcase new products and services, and deliver important news about your company. For instance, you may initiate a 'give-away' that is a printer, but also take the opportunity to tell your customers about a printer sale next week. Your promotional tool has not only lured customers to your site, but it has also increased the likelihood of getting a sale. Offering various promotions also enables you to obtain customer information that you can use in future marketing campaigns.
- ***Bookmarking*** - A good way to encourage customers to visit your site is to ask them to bookmark it. Through bookmarking, they have easy access to your site and do not have to remember your site's exact URL to visit. Bookmarking a site is particularly beneficial for web surfers who like to follow links. It enables them to go back and take a more in-depth look at what you have to offer when they need to.
- ***Surveys*** - Surveys provide an effective avenue through which to gather important customer data that will help you to improve your business and plan for the future. To encourage visitors to complete the survey, you can provide an incentive such as an opportunity to win a prize.
- ***Awards/Testimonials*** - Including awards and testimonials on your site will provide credibility to your business. They will also provide a foundation for you to build rapport and trust with your customers, who will be more willing to visit a site they can trust.
- ***Online Chat*** - Online chat mechanisms provide a forum where customers can come together and share their experiences with each other and you. This interactive tool allows you direct access to customer opinions where you can gauge trends and determine their views on the industry.
- ***Tours*** - Online tours provide you with an opportunity to showcase particular products and services, and highlight their key benefits. For instance, you may have a CRM product that you would like to promote. What better way to show how it works than to provide a tour of the product - making what could be a potentially complex product look simple and easy to use.

Online and Offline Promotional Techniques

 Article Submissions
 Newsletters Press Releases
 Banner
 Advertising
 Sponsorships Link Strategies
 News Groups
 Email
 Marketing
 Search Engine Optimization
 Affiliate Marketing
 Web Site Promotion Services
 Collateral Material
 Trade Shows /Launch Events
 Banner Advertising - If you want to increase your company's brand awareness, implementing a banner ad campaign is an effective advertising method. Banner ads are an effective direct marketing tool that can increase site traffic if they are creative and include a call-to-action. Advertise on sites that your customers would visit, and ensure you provide the best possible offer you can.
 Link Strategies - Linking strategies provide an effective way for customers to learn about your company through other sites related to your subject. The key to developing an effective link program is to identify sites that are not direct competitors but have a similar target market as you. It is also necessary to find a balance between the amount of traffic that exits your site through a link and the number of people who visit your site through a link on another site. Building links from other sites to your site also increases your site's relevancy to search engines.

E-Commerce Notes
Unit-1
Lecture-10

Web Traffic Analysis

- Web analytics is the measurement, collection, analysis and reporting of internet data for purposes of understanding and optimizing web usage.
- Web analytics is not just a tool for measuring web traffic but can be used as a tool for business and market research, and to assess and improve the effectiveness of a web site.
- Web analytics applications can also help companies measure the results of traditional print or broadcast advertising campaigns. It helps one to estimate how traffic to a website changes after the launch of a new advertising campaign. Web

analytics provides information about the number of visitors to a website and the number of page views. It helps gauge traffic and popularity trends which is useful for market research.

There are two categories of web analytics; *off-site* and *on-site* web analytics

- **Off-site web analytics**: refers to web measurement and analysis regardless of whether you own or maintain a website. It includes the measurement of a website's *potential* audience (opportunity), share of voice (visibility), and buzz (comments) that is happening on the Internet as a whole.
- **On-site web analytics**: measure a visitor's behavior once *on your website*. This includes its drivers and conversions; for example, the degree to which different landing pages are associated with online purchases. On-site web analytics measures the performance of your website in a commercial context. This data is typically compared against key performance indicators for performance, and used to improve a web site or marketing campaign's audience response. Google Analytics is the most widely-used on-site web analytics service; although new tools are emerging that provide additional layers of information, including heat maps and session replay.

Web server logfile analysis:

Web servers record some of their transactions in a logfile. It was soon realized that these logfiles could be read by a program to provide data on the popularity of the website. Thus arose web log analysis software.

Two units of measure were introduced in the mid-1990s to gauge more accurately the amount of human activity on web servers. These were ***page views*** and ***visits*** (or *sessions*). A page view was defined as a request made to the web server for a page, as opposed to a graphic, while a *visit* was defined as a sequence of requests from a uniquely identified client that expired after a certain amount of inactivity, usually 30 minutes. The page views and visits are still commonly displayed metrics, but are now considered rather rudimentary.

The emergence of search engine spiders and robots in the late 1990s, along with web proxies and dynamically assigned IP addresses for large companies and ISPs, made it more difficult to identify unique human visitors to a website. Log analyzers responded by tracking visits by cookies, and by ignoring requests from known spiders.

Security of transactions on Web

Secure online transaction models

- -The simplest method of doing direct business online on Internet is to set up a secure world wide web server then create content pages and program forms to take orders.

Secure web server:

A secure web server must by definition support some type of security protocol. The two most important are secure hypertext transfer protocol (S-HTTP) and secure sockets layer (SSL), which was initially developed by Netscape and offered to the Internet community as a proposed standard in 1995. However, one

of their primary advantages is their relative unobtrusiveness to the consumer using an SSL or S-HTTP enabled browser.

Secure server purchasing

- The consumer browses through graphical and textual descriptions of the merchants' products selects a purchase and usually clicks on a button that says "buy now" to make a purchase. If consumer is using a secure browser supported by secure server, that button will produce a form on consumer's screen which the consumer must complete. Delivery and payment information has been provided the product will be delivered. If the customer is using a browser that is not secure or that uses a protocol not supported by the server, then some other method must be employed to consummate the transaction. Delivery information represents name, address, delivery address, email address and any other information necessary to deliver the product.
  If product is a physical item, then a physical destination, preferred shipper and telephone number may be necessary. If product is a digital item, then it may be transmitted directly to consumer via the browser by e-mail or through some other application such as file transfer.

Secure server selling

First the merchant needs to publish product offerings on Internet with secure server. Servers are available that support SSL, S-HTTP and both. Because the Internet is an open network based strictly on proper and widespread implementation of standards, it doesn't make sense for merchants to limit their potential customers by using only one standard.

- The merchant must go beyond merely setting up the server. As with mail orders there must be a mechanism for processing the information contained on an order form. Most often the merchant will use interfaces of some type to automate transactions. Companies selling physical products over Internet use email confirmations and shipping notices to keep customers up to date on status of orders and all merchants can use network applications to notify their internal organization of orders.

Digital Certificates

- A digital certificate is a digital form of identification, much like a passport or driver's license. A digital certificate is a digital credential that provides information about the identity of an entity as well as other supporting information. A digital certificate is issued by an authority, referred to as a certification authority (CA). Because a digital certificate is issued by a certification authority, that authority guarantees the validity of the information in the certificate. Also, a digital certificate is valid for only a specific period of time.
- Digital certificates provide support for public key cryptography because digital certificates contain the public key of the entity identified in the certificate. Because the certificate matches a public key to a particular individual, and that certificate's authenticity is guaranteed by the issuer, the digital certificate

provides a solution to the problem of how to find a user's public key and know that it is valid.

- These problems are solved by a user obtaining another user's public key from the digital certificate. The user knows it is valid because a trusted certification authority has issued the certificate.
- In addition, digital certificates rely on public key cryptography for their own authentication. When a digital certificate is issued, the issuing certification authority signs the certificate with its own private key. To validate the authenticity of a digital certificate, a user can obtain that certification authority's public key and use it against the certificate to determine if it was signed by the certification authority.

International standards

- The S/MIME standard specifies that digital certificates used for S/MIME conform to the International Telecommunications Union (ITU) X.509 standard. S/MIME version 3 specifically requires that digital certificates conform to version 3 of X.509. Because S/MIME relies on an established, recognized standard for the structure of digital certificates, the S/MIME standard builds on that standard's growth and thus increases its acceptance.
- The X.509 standard specifies that digital certificates contain standardized information. Specifically, X.509 version 3 certificates contain the following fields:

 Version number The version of the X.509 standard to which the certificate conforms.

 Serial number A number that uniquely identifies the certificate and is issued by the certification authority.

 Certificate algorithm identifier The names of the specific public key algorithms that the certification authority has used to sign the digital certificate.

 Issuer name The identity of the certification authority who actually issued the certificate.

 Validity period The period of time for which a digital certificate is valid.

 Subject name The name of the owner of the digital certificate.

 Subject public key information The public key that is associated with the owner of the digital certificate and the specific public key algorithms associated with the public key s valid and contains both a start date and an expiration date.

 Issuer unique identifier Information that can be used to uniquely identify the issuer of the digital certificate.

 Subject unique identifier Information that can be used to uniquely identify the owner of the digital certificate.

 Extensions Additional information that is related to the use and handling of the certificate.

 Certification authority's digital signature The actual digital signature made with the certification authority's private key using the algorithm specified in the certificate algorithm identifier field