E-Commerce

Introduction

The use of electronic transmission medium (telecommunications) to engage in the exchange including buying and selling of products and services requiring transportation either physically or digitally from location to location.

Potential benefits of E- Commerce :

The following are the potential benefits of E-commerce.
1. Internet or web based e-commerce is more affordable than traditional EDI.
2. Internet or web based E-commerce can reach more business partners.
3. More geographically dispersed customer based.
4. Lower costs for procurement processing.
5. Cost of purchases can be lowered.
6. Reduction in inventories (storage and handling)
7. Lower cycle time.
8. Better customer services
9. Lower sales and marketing.

The word commerce is the basic concept for electronic commerce, pertaining to buying and selling of goods while 'commercial' denotes business practice and activities intended to make profits. Electronic-commerce, like any other business, deals with the exchange of money for soft or hard goods and services. Kalakota and Whintons in 1997 defined the term E-commerce from different perspectives. These perspectives are:

• Communication

• Business Process

• Service

• Online

Communication Perspective: According to this perspective, E-commerce is the delivery of information, product/services or payments over tele-communication channels, computer networks or any other electronic mode of communication.

Business Process Perspective: This says that E-commerce is the application of technology towards the automation of business transactions and work flow.

Service Perspective: E-commerce is defines as a tool that addresses the desire of firms, consumers and management to cut service cost while improving the quality of goods/services and increasing the speed of service delivery.

Online Perspective: E-commerce provides the capability of buying and selling products and information on the internet and other online services.

Electronic Commerce Framework
• E-Commerce application will be built on the existing technology infrastructure
A myriad of computers
Communication networks
Communication software

Generic **Framework** of Electronic Commerce

• Common business services for facilitating the buying and selling process
• Messaging & information distribution as a means of sending and retrieving information.
• Multimedia content & network publishing, for creating a product & a means to communicate about it.
• The information superhighway- the very foundation-for providing the high way system along which all e-commerce must travel.
• The two pillars supporting all e-commerce applications & infrastructure.
• Any successful e-commerce will require the I-way infrastructure in the same way that regular commerce needs.
• I-way will be a mesh of interconnected data highways of many forms
Telephone, wires, cable TV wire
Radio-based wireless-cellular & satellite
• Movies=video + audio
• Digital games=music + video + software
• Electronic books=text + data + graphics + music + photographs + video
• In the electronic 'highway system' multimedia content is stores in the form of electronic documents.
• These are often digitized
• On the I-way messaging software fulfills the role, in any no. of forms: e-mail, EDI, or point-to-point file transfers.
• Encryption & authentication methods to ensure security.
• Electronic payment schemes developed to handle complex transactions.
• These logistics issues are difficult in long-established transportation.

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E-commerce and media convergence:

E-commerce and media convergence Media convergence is use to make e-marketplace a reality. E-com has become irrevocably linked with the idea of convergence of industries centered on information that until today has been isolated for content, storage, N/w, business applications and consumer devices. Convergence: Melding of consumer electronics, TV, Publishing, telecommunication, and computers for the purpose of facilitating new forms of information based commerce.

Media convergence:

It applies to the conversion of text, voice, data, image graphics and full motion video into digital content. Cross media convergence: It refers to the integration of various industries entertainment, publication and communication media-based on multimedia content. Phenomenon of convergence: Convergence of content: translates all types of information content- books, business dependent videos, musics -into digital information. Convergence of transmission: It compresses and stores digitized information so it can travel through existing phone and cable wiring. Which provides pipeline to transmit voice, data, image and video all without rewiring the neighborhood. Convergence of information access devices: have the sophistication to function as booth computer and TV. Condition for convergence: 1) widespread availability of increasingly low- cost, high-performance enabling component technologies, including semiconductors, storages & display devices, communication system, among others. 2) Aggressive regularity actions that are introducing competition in monopoly markets (local and long distance communication) 3) Aggressive regularity) media convergence

Anatomy of E-Commerce applications
E-Commerce applications are:
1. Multimedia Content for E-Commerce Applications
2. Multimedia Storage Servers & E-Commerce Applications
      i. Client-Server Architecture in Electronic Commerce
      ii. Internal Processes of Multimedia Servers
      iii. Video Servers & E-Commerce
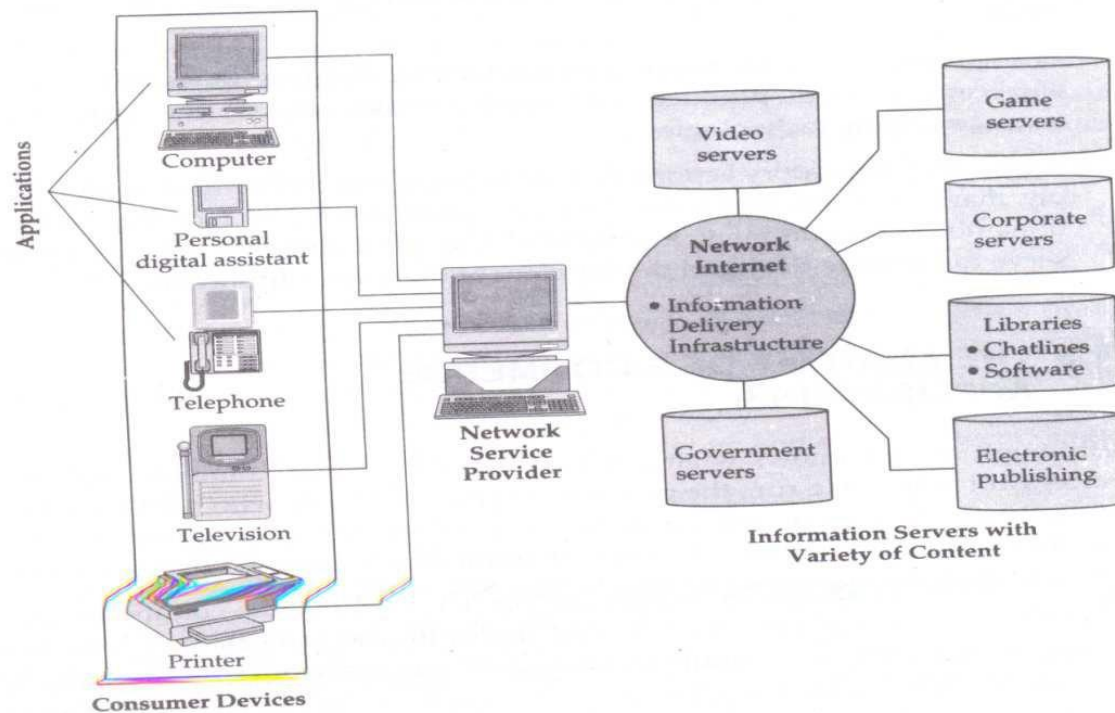3. Information Delivery/Transport & E-Commerce Applications
4. Consumer Access Devices

Figure 1.2   Elements of electronic commerce applications

Multimedia Content for E-Commerce Applications
• Multimedia content can be considered both fuel and traffic for electronic commerce applications.
• The technical definition of multimedia is the use of digital data in more than one format, such as the combination of text, audio, video, images, graphics, numerical data, holograms, and animations in a computer file/document.
• Multimedia is associated with Hardware components in different networks.
• The Accessing of multimedia content depends on the hardware capabilities of the customer.

Multimedia Storage Servers & E-Commerce Applications:
• E-Commerce requires robust servers to store and distribute large amounts of digital content to consumers.
• These Multimedia storage servers are large information warehouses capable of handling various content, ranging from books, newspapers, advertisement catalogs, movies, games, & X-ray images.
• These servers, deriving their name because they serve information upon request, must handle large-scale distribution, guarantee security, & complete reliability
i. Client-Server Architecture in Electronic Commerce
• All e-commerce applications follow the client-server model

• Clients are devices plus software that request information from servers or interact known as message passing

• Mainframe computing, which meant for "dump"

• The client server model, allows client to interact with server through request-reply sequence governed by a paradigm known as message passing.

• The server manages application tasks, storage & security & provides scalability-ability to add more clients and client devices (like Personal digital assistants to Pc's. See in fig.

ii. Internal Processes of Multimedia Servers

• The internal processes involved in the storage, retrieval & management of multimedia data objects are integral to e-commerce applications.

• A multimedia server is a hardware & software combination that converts raw data into usable information & then dishes out.

• It captures, processes, manages, & delivers text, images, audio & video.

• It must do to handle thousands of simultaneous users.

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

iii. Video Servers & E-Commerce

The electronic commerce applications related to digital video will include

1. Telecommunicating and video conferencing

2. Geographical information systems that require storage & navigation over maps

3. Corporate multimedia servers

4. Postproduction studios

5. Shopping kiosks.

• Consumer applications will include video-on-demand.

• The figure which is of video–on demand consist video servers, is an link between the Content providers (media) & transport providers (cable operators)

Information Delivery/Transport & E-Commerce Applications

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

Transport Routers

Information Transport Providers Information Delivery Methods

• Telecommunication companies long-distance telephone lines; local telephone lines

• Cable television companies Cable TV coaxial, fiber optic & satellite lines

• Computer-based on-line servers Internet; commercial on-line service providers

• Wireless communications Cellular & radio networks; paging systems

Consumer Access Devices

Information Consumers Access Devices

• Computers with audio & video Personal/desktop computing capabilities

Mobile computing

- Telephonic devices Videophone
- Consumer electronics Television + set-top box Game systems
- Personal digital assistants (PDAs) Pen-based computing, voice-driven computing

E-Commerce Consumer applications:

- People need entertainment on demand including video, games, news on-demand, electronic retailing via catalogs etc.
- Currently now we are taking the video on-demand.
- Why most companies betting heavily on this?

1. 93 million homes have television

2. Americans spend nearly half their free time watching television

3. Every evening, more than one-third of the population is in front of a television

4. Sight, sound, and motion combine to make television a powerful means of marketing

Consumer Applications and Social Interaction:

- Lessons from history indicate that the most successful technologies are those that make their mark social
- In 1945, in U.S no one had TV. By 1960 about 86percent of households did
- Now contrast with Telephone. Bell invented the telephone in 1876 and by1940, 40% of U.S. households and by 1980 about 95-98 percent of households connected
- Penetration was slower for Telephone than for TV because of the effort needed to set up the wiring infrastructure. The impact of both was good on business, social, consumer behavior and entertainment habits

Radio began in 1960, and by 1989, almost 3 decades later, just 319 radio stations were followed the news format

In 1994, their number exceeded 1000

What do Consumers really want?

1. They want quality and cost of service

2. If a new system requires more steps to do essentially the same things, consumers may resist it.

3. Some people fit that mold, but most of public prefers to lay back and just watch television and let someone else do the work of figuring out the sequence of television programming

What are Consumers willing to spend?

1. According to the video on-demand, consumers get the cable bill at basic charge they will buy

2. If it is doubled they will not buy and at the service provider economics will increased then network operators might look to advertises to fill the gap

Delivering products to Consumers

1. Packing and distribution must be considered

2. Blockbuster video collects the information and shows the typical consumer

3. Spends $12 a month on home video expenditures

4. Go to video store to select video on limited budget and has time to kill

5. Only periodically expends a large sum of money

Consumer Research and E-Commerce

Consumer opinion about interactive television is

46% be willing to pay

39% want video phone calls

63% would pay for movies on-demand

57% would pay for Television shows on-demand

78% said their worry about it is that they will pay for something that they previously received free of charge

64% are think it make it harder for viewers to protect privacy

41% are tell that it is too confusing to use

Changing business Environment

1. The traditional business environment is changing rapidly

2. Many companies are looking outside and within to shape business strategies

3. These activities include private electronic connections to

customers, suppliers, distributors, industry groups etc.

4. The I-superhighway will expand this trend so that it allow business to exchange information.

E-Commerce and the retail Industry

1. Conditions are changing in the "new economy" with respect to the retail industry

2. Consumers are demanding lower prices, better quality, a large selection of in-season goods.

3. Retailers are filling their order by slashing back-office costs, reducing profit margins, reducing cycle times. Buying more wisely and making huge investments in technology

4. Retailers are in the immediate line of fire and were first to bear the brunt of cost cutting

Marketing and E-Commerce

1. E-commerce is forcing companies to rethink the existing ways of doing target marketing and even event marketing.

2. Interactive marketing is in electronic markets via interactive multimedia catalogs

3. Users find moving images more appealing than still image and listening more appealing than reading text on a screen

4. Consumer information services are a new type of catalog business

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Inventory Management and Organizational Applications

1. With borders opening up and companies facing stiff global competition

2. Adaptation would include moving to computerized, "paperless" operations to reduce

3. Once targeted business process is inventory management, solutions for these processes go by different names

4. In manufacturing industry they're known as just-in-time inventory systems, in the retail as quick response programs, and in transportation industry as consignment tracking systems

Just-in-Time (JIT) Manufacturing

1. It is viewed as an integrated management system consisting of a number of different management practices dependent on the characteristics of specific plants

2. The first principle is elimination of all waste (time, materials, labour & equipment)

3. The following management practices are focused factory, reduced set-up times, group technology, total productive maintenance, multifunction employees, uniform workloads,

IT purchasing, kanban total quality control & quality circles

Quick Response Retailing (QR)

1. It is a version of JIT purchasing tailored for retailing

2. To reduce the risk of being of out of stock, retailers are implementing QR systems

3. It provides for a flexible response to product ordering and lowers costly inventory levels

4. QR retailing focuses on market responsiveness while maintaining low levels of stocks

5. It creates a closed loop consisting of retailer, vendor, & consumer chain,& as consumers make purchases the vendor orders new deliveries from the retailer through its computer network

Market forces influencing the I-Way:

Demands and Requirements of market participants.

The failure and success of any product or service is a factor of market forces. To become a reality, Ecommerce needs a network infrastructure to transport the content also

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known as the electronic interactive or multimedia I-Way. The I-Way has become the leading word.

The principle drawback of existing communication infrastructure lies in its inabilities to provide integrated voice, data and video services. Thus a business user requiring voice, data and video conferencing services often had to use three separate networks such as voice network, data network and video conferencing network. This understanding is important because e-commerce applications are dependent on the underlying I-way. Until recently the market place was fragmented into communication, entertainment and information sectors. The following two points worth considering are

1. The boundaries among communication are not absolute.

Ex: Video is a part of Information, entertainment and communication.

2. The boundaries among equipment are absolute.

Ex: Today technology exists to allow television sets and pcs to interact or exchange any sort of data. The emerging compatibility results in the flexibility needed to take advantage of new services. The expectations of I-way are on demand publishing, real time video conferencing, telemarketing, telemedicine, tele-communication etc. The cable industry wants to expand services from tv programming or paper view services such that the consumer can pay bills, shop or check stock prices.

Definition of I-Way:

I – Way is defined as universal affordable access to high performance network capable of carrying billions of bits per second in the context of e-commerce.

Components of I-Way:

The major components of I-way are

1. Consumer access equipments.

2. Ramps

3. Global Information Distribution Network.

1. Consumer Access Equipment:

It is often ignored component of I-way but represent critical category. The absence of slow progress in which holding of up other segments of I-way. This segment of I-way includes hardware and software vendors who provide physical devices such as computer software platforms such as browsers and operating system.

2. Ramps:

They simplify the leakages to schools and home to the communication backbone. This component is often called as last mile because they provide links. The providers of access ramps can be differentiated into

Global Information Distribution Networks:

The development of new communication technologies and continued employment of fiber optic facilities has resulted in higher transmission speeds at significantly low cost. The end result is a seamless web called the I-way of communication network, computer

digital libraries and compute electronics that will put vast amount of information at users finger tips. The two major technologies under pinning high speed global information distribution networks are

a) Long distance networks

b) Satellite networks.

a) Long distance network:

Long distance connectivity is available through cable (coaxial) or (fiber) owned by long distance interchange carriers (Ixc) Submarine cables provide an attractive economic advantage for selected rules, where growth advantage for selected rules, where growth is in demand and communication capacity is high. The Ixc's also play a significant role in the local access market by teaming with firms in the wireless and cable tv business. Ixc's are exploring alternative arrangements that would lower the cost of using the local network. Uniform speed efficiency, levels of technology and cost of telecom services are necessary for both voice and data services. Fibre optics have emerged as technology of choice because it is capable of providing higher bandwidth than satellite also it is immuned to electro magnetic interference. Long distance network infrastructure is now been deployed under seas to carry international traffic.

b) Satellite network:

Satellite networks have advantages over terrestrial network and they are accessible from any point on the globe. Satellite networks can provide broadband digital services including voice, data and video to many points without the cost of wide installation. Wide range of services include broadcast radio, video and overseas telephone links. Thus communication satellites are the crucial part of the global communication and infrastructure.

Networking Equipment

Hub: A hub, at the most basic level, is a "dumb" device that operates at the Physical layer of the OSI model. A hub forwards all signals it receives to all connected network devices. Think of a hub as a "drunk" – when he speaks, he speaks to all around him, even if he really only means to speak with one person.

Switch: Because the hub is something of a "drunk," it can be an inefficient (think about the excess traffic created) and unsecure device. Imagine if you wish to send sensitive credit card information over the network – do you really want every node to receive your electronic signal? To alleviate this, the switch was developed. A switch operates at the Data Link layer of the OSI model. It uses the MAC sub-layer to forward the relevant frames of information only to the intended recipient. Messages can still be broadcast, but this is only an option and not the normal condition. Unlike the "drunken" hub, the switch can speak softly to one person at a time or announce to the crowd. The

Network+ exam tends to test you on this difference between a hub and switch, so keep it fresh in your mind.

Bridge: A *bridge* also operates at the Data Link layer (aka Layer 2) and is used to **connect two (similar or dissimilar) physical network segments together**, forming a larger inter-network. It can forward packets or reject them based on their destination (MAC) address. Note: The connected network segments must have same network ID.

Router: The *router* operates at the Network layer of the OSI Model and is used to **forward packets across network segments to reach a certain destination address**. Do not be confused between a router and a bridge – a bridge simply forwards packets or frames based on their destination address from one connected network segment to another. A router **can determine where a packet should be sent to given its final destination (IP address)**. Usually, routers forward packets to other routers, but sometimes routers also forward to other pieces of network equipment. A router is usually used to connect a home computer to an "always-on" Internet connection through the home network. To appreciate what a router really does, run tracert to your favorite website and see how many steps (hops) are involved in getting from your computer to the web server in question.

Gateway: A *gateway* is any device that serves to **interface with other networks using dissimilar protocols** . For example, a gateway might interface between a home network and the Internet or between a NetBIOS network and an IPX/SPX network. A gateway operates in any of the seven OSI layers.

WAP: A *Wireless Access Point* is a device that **allows wireless devices to access and to communicate with the network**. It acts as a **bridge between the wired, traditional network and other wireless devices***.*Alternatively, it can act as a bridge between wireless devices and another, linked WAP. It typically operates in the Network layer of the OSI model as a sort of router/bridge/switch combination. Note that most WAP devices direct traffic by MAC address, making them switched.

NIC: A *Network Interface Card* is a device that allows **a node to connect to the network, typically in the form of a computer "card"** *(PCI/ISA)*, but also in the form of an external (think USB) device. It can either be wired and connect to a traditional, wired network, or wireless, and connect to a WAP.

NSFNET
NSFNET is the largest single government investment in the NSF funded program. Almost all the network users throughout the world pass information to or from

members. The NSFNET backbone sites were interconnected to the new ANS provided (Advanced network services) by T-3 backbone. Higher development is noticed in the number of local state and regional networks. The cost reduction was noticed in general i9n the past. However, it can be said that the Internet is privatized to certain extent as majority of activities are carried out by the private sector. Due to some non-profit activities, there is development in expertise, competition and in commercial services. The **National Science Foundation Network** (**NSFNET**) was a program of coordinated, evolving projects sponsored by the National Science Foundation(NSF) beginning in 1985 to promote advanced research and education networking in the United States.[1] NSFNET was also the name given to several nationwide backbone networks that were constructed to support NSF's networking initiatives from 1985 to 1995. Initially created to link researchers to the nation's NSF-funded supercomputing centers, through further public funding and private industry partnerships it developed into a major part of the Internet backbone.

In 1985, NSF began funding the creation of five new supercomputing centers:
John von Neumann Center at Princeton University
San Diego Supercomputer Center (SDSC) on the campus of the University of California, San Diego (UCSD)
National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign
Cornell Theory Center at Cornell University
Pittsburgh Supercomputing Center (PSC), a joint effort of Carnegie Mellon University, the University of Pittsburgh, andWestinghouse

NSF's three tiered network architecture
Also in 1985, under the leadership of Dennis Jennings, the NSF established the National Science Foundation Network (NSFNET). NSFNET was to be a general-purpose research network, a hub to connect the five supercomputing centers along with the NSF-funded National Center for Atmospheric Research (NCAR) to each other and to the regional research and education networks that would in turn connect campus networks. Using this three tier network architecture NSFNET would provide access between the supercomputer centers and other sites over the backbone network at no cost to the centers or to the regional networks using the open TCP/IP protocols initially deployed successfully on the ARPANET.

NSFNET: ARCHITECTURE AND COMPONENTS:
 ·National Science Foundation (NFS) has created five super computer centers for complex and wider range of scientific explorations in mid-1980s. Until then, supercomputers were limited to military researchers and other who can afford to buy.

·NSF wanted to make supercomputing resources widely available for academic research. And the logic is that the sharing of knowledge, databases, software, and results was required. So NSF initially tried to use the ARPANET, but this strategy failed because of the military bureaucracy and other staffing problems. So, NSF decided to build its own network, based on the ARPANET's IP technology.

·The NFSNER backbone is initially connected to five supercomputing networks with initial speed 56 kbps telephone leased lines. It was considered fast in 1985 but it is too slow according to modern standards.

·Since every university could not be connected directly to the center, need of access structure was realized and accordingly each campus joined the regional network that was connected to the closest center. With this architecture, any computer could communicate with any other by routing the traffic through its regional networks, where the process was reserved to reach the destination.

Internet terminology

Bandwidth. The capacity of a data connection, usually measured in kilobits per second (kbps) or megabits per second (mbps). In terms of website hosting, bandwidth can refer to a monthly allocation data that can be transferred (browsed, for example) from a website.

Bit. A single piece of computer information - either 0 or 1 (off or on).

Blog. A blog (short for "web log") is a discussion forum where you can make posts and others can post comments in response. With news feeds and syndication (such as RSS), readers and *aggregators* can easily monitor a number of blogs. An *aggregator* is a blog reader client that can monitor a number of different blogs and *feeds* in order to provide you with the most recent posts from the various feeds.

Browser. A browser allows you to view web pages on the internet. This may involve bi-directional communication, such as viewing of a website, making a purchase, or posting on a blog. Many different browsers exist, including Firefox, Opera, Internet Explorer, and Netscape. There are dozens of older browser versions, many of which render web pages differently or incorrectly. Modern browsers are more standards-compliant; Firefox is arguably the most standards-compliant browser.

Bulletin board system (BBS). Bulletin boards or forums were in existence long before blogs. They are generally more structured than blogs - a bulletin board can have many sub-forums, each dedicated to a specific issue or location. For example, a bulletin board could have a forum for each individual state.

Cascading Style Sheets (CSS). CSS are used to define the presentation of web pages. They can define colors, fonts, and positional layout. CSS are important in that they separate the presentation of a web page from content, which is specified in HTML. CSS allow presentation features (for example, font size and color) of many pages of a website to be changed in one central location.

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Client. An end-user program that primarily downloads files and information from a server. A web browser is a client, as is an email program. This arrangement is called client-server.

Comp (Comprehensive Layout). In graphic design, a comp is a layout of a page or website, without the actual textual content. A comp can vary from a hand sketch to a detailed graphic image. A comp shows the positions of images, text and titles and serves as the template or framework to which the actual content is added.

Content. The visible text and associated images on your website, not including banners and navigation. Textual content is often referred to as "copy".

Database. A structured collection of data, typically contained in tables which in turn contain rows of data. In the context of websites, a website may use one or more databases contained on the website server. Stores, blogs, and bulletin boards typically store their data in a database. Data in a database is typically accesses via SQL (Structured Query Language) or MySQL, which is an "open source" version of the language.

Directory or folder. A directory is a collection of files on a computer that is given a specific name. Over time, directories have also become known as folders.

Domain name. A website typically is hosted under a domain name, such as www.domain.org. A domain name provides a user-friendly way of denoting a website. Technically, domain names are resolved to IP address that identify the physical server where a website resides. A domain can be registered from a domain registrar for a term varying from one to ten years, and then renewed after that.

Domain name front-running. Some domain registrars will engage in *domain name front running*. This is where, if you search for domain name using the registrar's own *whois* domain name lookup facility, the registrar will automatically register the domain name in their own name and hold it for four days. Thus, you will have to purchase the domain name from that specific registrar, at their prices which will likely be higher than competitive rates.

Domain name park or alias. A method of making a domain name bring up a website that is referenced by another domain name. For example, www.mydomain.org could be parked or aliased to www.mydomain.com. "Parking" a domain name also refers to registering it, but not associating the domain with a specific website.

Domain name private registration. Standard registration allows your contact information to be viewed by anyone via the *whois* lookup facility. (Spammers also "harvest" this information). Private registration, usually for an additional fee, hides your contact information.

Domain name redirect. A method of making a domain name bring up a website that is referenced by another domain name. For example, www.mydomain.org could be redirected to www.mydomain.com. Because of the behavior of search engines, redirection is preferred over domain parking.

Domain name registrar. A domain can be registered from a domain registrar for a term varying from one to ten years, and then renewed after that. The *registrar* is typically a different company than the website hosting company.

Domain Name System (DNS). DNS is a system that catalogs all website domain names, along with their corresponding IP addresses. When a domain is registered and a corresponding website is set up, the domain's DNS record is configured to point to the website server's IP address.

Email alias. An email alias is a forwarding mechanism configured with a website. Email sent to the alias will be forwarded to a different email address, which can be configured as an email account on a different website server. For example, "info@mydomain.com" could be configured to forward to "bob@somewhere.com".

Email. Email, or electronic mail, is one component of the internet that facilitates sending messages across the internet. A website is often created with one or more email accounts, using Post Office Protocol (POP or POP3) accounts or Internet Message Access Protocol (IMAP) accounts. Email sent to those accounts resides on the website server until downloaded by an email client on an end-user's computer, or read by a web-based email system.

Email campaign. An email campaign is a one or more emails sent to a group of recipients who have opted in to an email list. A timed or "drip" campaign will send out emails at regular intervals (perhaps once per week). The stream of timed emails will be triggered by a specific action by each recipient - usually by the recipient signing up to receive the emails. An email campaign auto responder will send a follow-up email to a response from an original recipient. This cycle may be repeated for a specified number of iterations.

E-commerce (Electronic Commerce). E-commerce (or eCommerce) is the offering and purchasing of products over the internet. It typically requires a website with a store and a payment mechanism involving a merchant account and/or a third-party payment facilitator.

File. A file is a self-contained collection of computer data and has a unique name. A web page is typically maintained as a file on a server and is downloaded when you browse it. Audio and video are also contained in files (which can become very large).

FTP (File Transfer Protocol). FTP is a component of the internet that facilitates data transfer via uploading and downloading of files between your computer and a server.

Firewall. A program that generally typically resides on your computer in order to block unauthorized access via the internet. A firewall is essential if you are constantly connected to the internet, for example, via DSL or cable modem.

Flash. Flash is multimedia capability that allows you to add animations and interactivity to your website. Most graphic animation is done with Flash. In addition, playing of a sizeable proportion of the audio and video on the web is controlled via

Flash. Flash animations are typically created using vector graphics, which makes them fast to download and scalable in size.

Graphic Design. This is the process of creating visual products and presentations. A graphic artist is one who does the graphic design. With respect to the web, a person versed in graphic design creates the layout of your website.

Hosting. When a website is created, it is typically hosted on a commercial server, which is connected to the internet. This is known as hosting.

IP. Internet Protocol is a communications protocol for transferring data on the internet using packet switching and the TCP/IP protocols. IP also commonly refers to an IP Address, which is a series of four sets of numbers separated by periods that defines the server where a website is hosted. An example is 66.45.254.244 (which is the Wikipedia website).

Globalization and academic internet:

Globalization is the process of international integration arising from the interchange of world views, products, ideas and other aspects of culture.

Advances in transportation, such as the steam locomotive, steamship, jet engine, container ships, and in telecommunications infrastructure, including the rise of the telegraph and its modern offspring, the Internet, and mobile phones, have been major factors in globalization, generating further interdependence of economic and cultural activities.

Large-scale globalization began in the 19th century. In the late 19th century and early 20th century, the connectivity of the world's economies and cultures grew very quickly. The word "globalization" is a very recent term, only establishing its current meaning in the 1970s, which "emerged from the intersection of four interrelated sets of 'communities of practice': academics, journalists, publishers/editors, and librarians".

In 2000, the International Monetary Fund (IMF) identified four basic aspects of globalization: trade and transactions, capital and investment movements, migration and movement of people, and the dissemination of knowledge.

Further, environmental challenges such as global warming, cross-boundary water and air pollution, and over-fishing of the ocean are linked with globalization. Globalizing processes affect and are affected by business and work organization, economics, socio-cultural resources, and the natural environment.

Academic literature commonly subdivides globalization into three major areas: economic globalization, cultural globalization and political globalization.

Globalization is surely one of the most commonly used and misused terms in the world today whenever people talk or write about politics, economics, the environ-ment, music or just their day-to-day lives.

With the use of innovative resources, products and ideas across nations and geographic location, IT has created new and effective channels to exchange information, increasing

global integration. In the state of global turmoil we live in, it is apparent that the world is interconnected through a compound net of transnational networks. Global Inter connection is what distinguishes the Internet from any other means of communication, a medium that allows people to communicate and interact with one another, regardless of physical proximity. Defined as the network of networks, the Internet can help us understand and interpret the environment we live in. The Internet has altered all industries in many ways, but there are a number of traditional sectors that have been dramatically changed through the use of the internet. These include travel industry, music industry, science and academic publishing, news industry, as well as bookstores and of course retail trade. At the same time, traditional industries such as the postal service and video are rapidly declining. Nowhere has that impact been felt more than in science research and academic publishing, especially during the transition from hard copy to electronic files and the emergence of networked science. While this is the best known advancement in the development of the Internet, it is one of the most significant. A remarkable change in protocol has established the course of the Internet throughout our business and personal lives today (Dumon, 2013).

Besides, education at all levels is constantly transforming thanks to innovations in communication; websites now serve as a primary source of information and analysis for the masses. The business of higher education seems to becoming subject to technological disruption as other information-centric industries such as the news media, magazines and journals, encyclopedias, music, etc.

The future of globalization is one that no academic would venture to try to predict. The fluidity of this concept makes concrete recommendations for a definition difficult. By looking at the ways in which the definition has changed over the past 45 years, one can ascertain that the future will not give way to a simpler or a more refined means of arriving at a clearer conceptualization of the process. The impact of the internet on globalization has both positive and negative effects.   A positive includes the modernization and improvement in business on a global platform. Businesses have improved their global competitiveness and become more productive with more efficient electronic transaction processing and instant access to information. With the internet the market is now more competitive with consumers having a greater avenue of choices. The internet has increased the communication process between people living in different parts of the world and also helps to promote the political, social, economic, and cultural aspects of a country. As there is a positive impact of internet on globalization there can be seen a negative impact of internet on globalization as well.

While the internet's technological advancements have increased in some parts of the world, this is not true in the vast majority of the developing world, the less developed

countries. The internet is essentially a network of computers across the world which is linked through global telecommunications. Although, it was originally only used by defence personal in the united states, easy access to computers and related technology have made using the internet a common activity in more recent times. The world-wide-web (www) is a collection of interconnected documents which are accessible using the internet. It enables people from almost anywhere in the world to access information on almost any topic from shopping to weather forecasts; and from research to downloading music and movies.

Basics

Without technology, globalization would probably not be a topic for discussion. In particular, communications technology, in which the Internet plays a major role, has revolutionized how people work, expanded the global knowledge base and provided a variety of ways of bringing people and cultures closer together.

The Internet provides a platform where companies that are thousands of miles apart can communicate and share information.

On a social and cultural level, the Internet provides access to the same music whether you are in Beijing, Boston or Beirut, and people can make new friends around the globe via social networking sites.

Business

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

It allows a company based in the United States to have a customer service call center in Bangalore, staffed by highly-trained staff but with lower wage costs.

On the other hand, the growth in Internet use by businesses globally also opens up new job markets for U.S. IT professionals and engineers, whose expertise is sought outside the home market.

Mass Media

The Internet has altered the structure of the mass media. Most of the news networks were local or national prior to the Internet revolution, and only a few companies, such as CNN, broadcast in other countries.

Now the news on all networks is available constantly, anywhere in the world, and it is updated as events occur.

Some see the mass media aspect of Internet globalization as a negative, because it is claimed that English-speaking countries dominate the media, and this has popularized U.S. culture at the expense of local cultures.

Negatives

Not everyone is able to join the global community.

Countries in the developing world are not able to take advantage of the Internet in the same way as developed nations can. Socyberty suggests one reason for this is that Internet users are information receivers rather than information creators. In some places, political control of the Internet means the government censors the Internet and bans access to certain websites.

In effect, there is no universally equal access to the Internet, and this disadvantages people and businesses in developing nations who are unable to take advantage of the Internet's global potential.

Unit 2:

Internet Service Provider

An Internet Service Provider (ISP) is the industry term for the company that is able to provide you with access to the Internet, typically from a computer. If you hear someone talking about the Internet and they mention their "provider," they're usually talking about their ISP.

Your ISP makes the Internet a possibility. In other words, you can have shiny computer with a built-in modem and could have a router for networking, but without a subscription with an ISP, you won't have a connection to the Internet.

For the typical homeowner or apartment dweller, the ISP is usually a "cable company" that, in addition or offering a TV subscription, also offers an Internet subscription. You don't get both for the price of one, however. You can get just cable TV or just high-speed Internet, or both.

An ISP is your gateway to the Internet and everything else you can do online. The second your connection is activated and set up, you'll be able to send emails, go shopping, do research and more. The ISP is the link or conduit between your computer and all the other "servers" on the Internet. You may feel like you're talking to your mom directly through email, but in reality it's more "indirectly." Your email goes from your computer, to the ISP computers/servers, where it's sent along to its destination through other servers on the network.

REGIONAL ISP

Regional ISPs, or Tier 2 ISPs, come from an interesting mix of backgrounds. Some are formed from parts of former NSF funded networks that have since been privatized, some are run by regional Bell operating companies (RBOC) as part of their regional data networks, and some are relatively new networks that have been started by entrepreneurs. Whatever their origins, most regional ISPs extend coverage over an area of one to a few states. The ones shown here are fictional and for illustration only.

These networks typically connect to only one NSF NAP; or, they might access a NAP via one or more Tier 1 ISPs. Therefore, while their backbone networks are important to their customers, in as much as they will be used for regional access and for Internet access, it is often the dial-up and direct access connection points of these providers that are their most attractive features. Many regional ISPs in fact have more dial-up capacity than do the national providers.

Usually these providers are more diverse and less redundant than the national providers. Assuming equal pricing, when a customer chooses to buy access from a regional ISP instead of a national one, he or she is placing a premium on regional connectivity and ease of access, as opposed to national or global access.

Local ISP

Local ISPs are like regional ISPs, except they usually serve a significantly smaller area, such as a small state (e.g., Vermont) or a large metropolitan area. Local ISPs typically connect to a regional or national ISP for worldwide Internet connectivity.

NATIONAL

A national <u>service provider</u> is an Internet Service Provider (ISP) with a national presence. This model differs from smaller ISPs that function as local providers, covering limited geographic areas. A national service provider can serve clients across the country, albeit rural areas might only have partial or spotty coverage.

A service provider that sells broadband connections like Digital Subscriber Line (<u>DSL</u>), cable or Fiber Optic Service (FiOS), sometimes offers benefits that smaller, local providers cannot. For example, these services might <u>bundle</u> phone, television, Internet and cellular services for one easy bill. Robust webspace plans with slicker scripting tools and, in some cases, optional built-in commercial functionality are other features a national service provider might offer. Connectivity can also be more stable with less downtime or outages, though local or small providers might also have excellent uptime records.

CONSUMER-ORIENTED APPLICATIONS

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

(i) Entertainment

(ii) Financial Services and Information

(iii) Essential Services

(iv) Education and Training

Consumer Life-Style Needs Complementary Multimedia Services, Entertainment Movies on demand, video cataloging, interactive Ads, Multi-user games, on-line discussions.

• Financial Services and Home Banking, Financial services, Information, Financial news.

• Essential Services Home Shopping, Electronic Catalogs, telemedicine, remote diagnostics.

· Education and Training Interactive education, multiuser games, video conferencing, on-line databases.

1. Personal Finance and Home Banking Management

(i) Basic Services

(ii) Intermediate Services

(iii) Advanced services

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2. Home Shopping

(i) Television-Based Shopping

(ii) Catalog-Based Shopping

3. Home Entertainment

(i) Size of the Home Entertainment Market

(ii) Impact of the Home Entertainment on Traditional Industries

4. Micro transactions of Information

1. Personal Finance and Home Banking Management:

• The newest technologies are direct deposit of payroll, on-line bill payment and telephone transfers.

• The technology for paying bills, whether by computer or telephone, is infinitely more sophisticated than anything on the market a few years ago

• In 1980s were the days of "stone age" technology because of technology choices for accessing services were limited

• For home banking, greater demands on consumers and expanding need for information, it's services are often categorized as basic, intermediate and advanced

(i) Basic services

• These are related to personal finance

• The evolution of ATM machines from live tellers and now to home banking

• The ATM network has with banks and their associations being the routers and the ATM machines being the heterogeneous computers on the network.

• This interoperable network of ATMs has created an interface between customer and bank that changed the competitive dynamics of the industry. See in next figure

• Increased ATM usage and decrease in teller transactions

• The future of home banking lies with PC's

(ii) Intermediate Services

• The problem with home banking in 1980 is, it is expensive service that requires a PC, a modem and special software

• As the equipment becomes less expensive and as bank offers broader services, home banking develop into a comprehensive package that could even include as insurance entertainment

• Consider the computerized on-line bill-payment system

• It never forgets to record a payment and keeps track of user account number, name, amount and the date and we used to instruct with payment instructions. See in Fig;

(iii) Advanced Services

• The goal of advanced series is to offer their on-line customers a complete portfolio of life, home, and auto insurance along with mutual funds, pension plans, home financing, and other financial products

• The Figure explains the range of services that may well be offered by banks in future

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• The servic3es range from on-line shopping to real-time financial information from anywhere in the world

• In short, home banking allows consumers to avoid long lines and gives flexibility

2. Home Shopping:

• It is already in wide use.

• This enable a customer to do online shopping

(i) Television-Based Shopping:

• It is launched in 1977 by the Home Shopping Network (HSN).

• It provides a variety of goods ranging from collectibles, clothing, small electronics, house wares, jewelry, and computers.

• When HSN started in Florida in 1977, it mainly sold factory overruns and discontinued items

• It works as, the customer uses her remote control at shop different channels with touch of button. At this time, cable shopping channels are not truly interactive

(ii) Catalog-Based Shopping

• In this the customer identifies the various catalogs that fit certain parameters such as safety, price, and quality

• The on-line catalog business consists of brochures, CD-ROM catalogs, and on-line interactive catalogs

• Currently, we are using the electronic brochures

3. Home Entertainment:

• It is another application for e-commerce

• Customer can watch movie, play games, on-screen catalogs, such as TV guide.

• In Home entertainment area, customer is the control over programming

• In Table tells the, What will be required in terms of Television-based technology for this telemart to become a reality

The Telemart: Present and Future Functions

• Compressing and decoding The transition to digital satellite a digital signal(images are and cable network head broad compress to reduce quantity casting involves linking the TV of information) to decoder to reconvert into an analog signal

• Decoding a scrambled The broad casting of pay channel signal requires the encryption of the signal on emission & unscrambled

• Rapid loading of program An increase in the no. of individual on memory interactive services is possible only if n/w overloading is kept minimum

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

Advanced Services

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Size of the home Entertainment Market:

• Entertainment services are play a major role in e-commerce

• This prediction is underscored by the changing trends in consumer behavior.

• It is shown in Table

Impact of Home entertainment on traditional industries:

• This will have devastating effects on theater business

• Economic issues might allow theaters to maintain an important role in the movie industry

• Today average cable bill is approximately $30 a month

Industry Estimates of consumer Expenditures

1980 ($4.7 bin) 1990 ($31.0 bin) 1993 ($37.8 bin)

Theaters 49.0% $2.3 14.5% $4.5 13.2% $5.0

Basic cable 35.0% $1.6 34.5% $10.7 36.9% $13.9

Premium cable 16.0% $0.8 16.5% $5.1 14.0% $5.3

Home video __ __ 33.8% $10.5 34.8% $13.2

Pay per view __ __ 0.7% $0.2 1.1% $0.4

4. Micro transactions of information:

• One change in traditional business forced by the on-line information business is the creation of a new transaction category called small-fee transactions for micro services

• The customer by giving some information away for free and provide information bundles that cover the transaction overhead.

• The growth of small-money transfers could foster a boom in other complementary information services

• The complexity is also increased in micro services when an activity named, reverification is entered.

• It means checking on the validity of the transaction after it has been approved

Desirable Characteristics of an Electronic marketplace

• Critical mass of Buyers and sellers: To get critical mass, use electronic mechanisms

• Opportunity for independent evaluations and for customer dialogue and discussion: Users not only buy and sell products, they compare notes on who has the best products and whose prices are outrageous

• Negotiation and bargaining: Buyers and sellers need to able to haggle over conditions of mutual satisfaction, money, terms & conditions, delivery dates & evaluation criteria

• New products and services: Electronic marketplace is only support full information about new services

• Seamless interface: The trading is having pieces work together so that information can flow seamlessly

• Resource for disgruntled buyers: It provide for resolving disagreements by returning the product.

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Mercantile Process models

• Mercantile processes define interaction models between consumers and merchants for online commerce

Mercantile Models from the Consumer's Perspective

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

(a) The consumer information search process.

(b) The Organizational search process.

(c) Consumer search experiences.
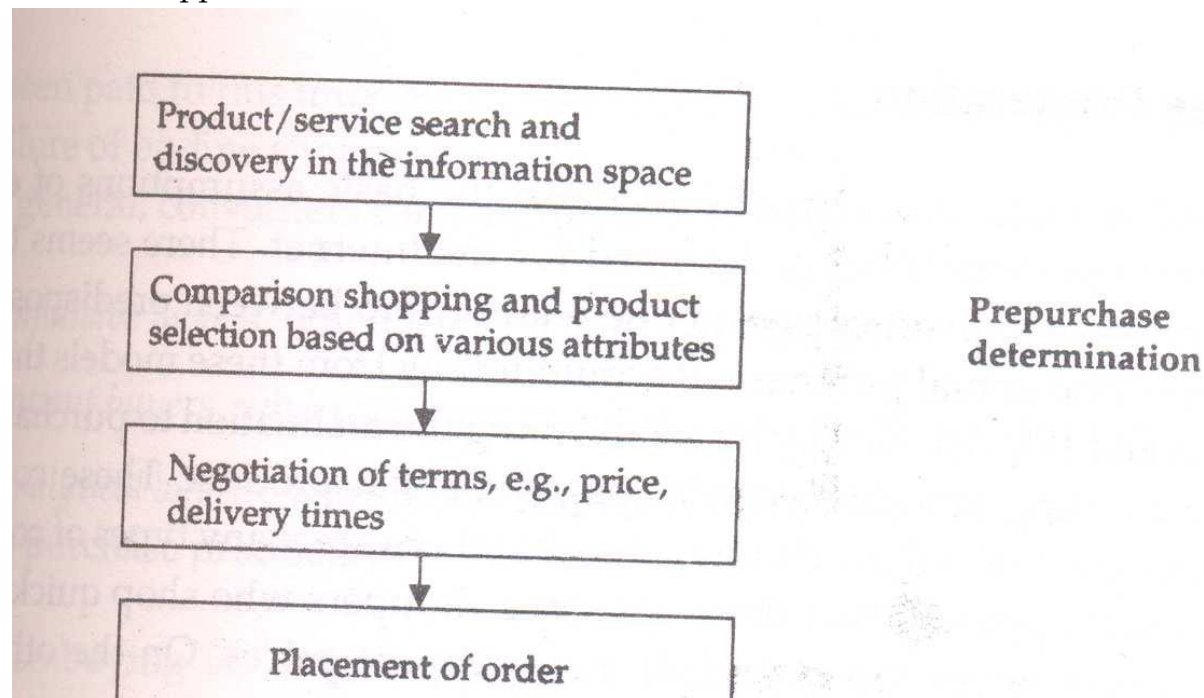
(d) Information brokers & brokerages.

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

(a) Mercantile process using digital cash.

(b) Mercantile transaction using credit cards.

(c) Costs of electronic purchasing.

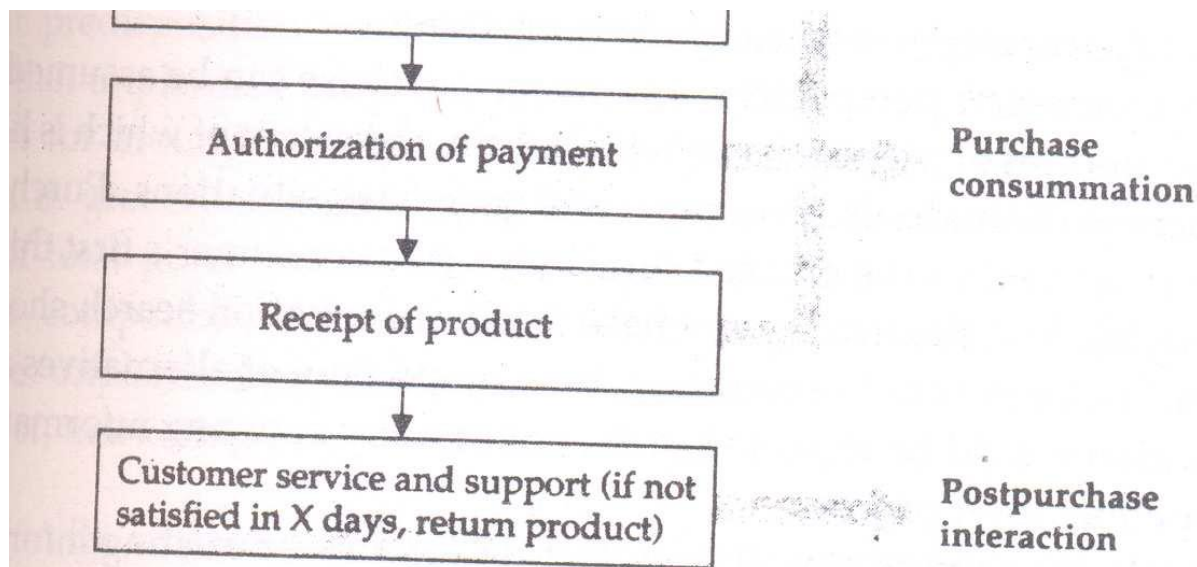(iii) Post purchase interaction: The post purchase interaction phase includes customer service &Support

Figure 7.4 Steps taken by customers in product/service purchasing

(i) Pre purchase Preparation
• The purchase is done by the buyers, so consumers can be categorized into 3 types
• Impulsive buyers, who purchase products quickly
• Patient buyers, purchase products after making some comparisons
• Analytical buyers, who do substantial research before making decision to purchase products,.

Marketing researches have several types of purchasing:
• Specifically planned purchases
• Generally planned purchases
• Reminder purchase
• Entirely unplanned purchases

The consumer information search process
• Information search is defined as the degree of care, perception,& effort directed toward obtaining data or information related to the decision problem
The Organizational search process
• Organizational search can be viewed as a process through which an organization adapts to such changes in its external environment as new suppliers, products, & services.
Consumer Search Experiences
• The distinction between carrying out a shopping activity "to achieve a goal" (utilitarian) as opposed to doing it because " u love it" (hedonic).

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Information Brokers and Brokerages

• To facilitate better consumer and organizational search, intermediaries called information brokers or brokerages

• Information brokerages are needed for 3 reasons: Comparison shopping, reduced search costs, and integration

(ii) Purchase Consummation

• Buyer contacts vendor to purchase

• Vendor states price

• Buyer and Vendor may or may not engage in negotiation

• If satisfied, buyer ask the payment to the vendor

• Vendor contacts billing service

• Billing service decrypts authorization and check buyers account balance

• Billing service gives to the vendor to deliver product

• Vendor delivers the goods to buyer

• On receiving the goods, the buyer signs and delivers receipt

• At the end of the billing cycle, buyer receives a list of transactions

Mercantile process using Digital Cash

• Buyer obtains e-cash from issuing bank

• Buyer contacts seller to purchase product

• Seller states price

• Buyer sends e-cash to seller

• Seller contacts his bank or billing service to verify the validity of the cash

• Bank gives okay signal

• Seller delivers the product to buyer

• Seller then tells bank to mark the e-cash as "used" currency

Mercantile Transactions Using Credit Cards

• Two major components compromise credit card transactions in this process: electronic authorization and settlement

• In retail transaction, a third-party processor (TPP) captures information at the point of sale, transmits the information to the credit card issuer for authorization, communicates a response to the merchant and electronically stores the information for settlement and reporting.

• The benefits of electronic processing include the reduction in credit losses, lower merchant transaction costs, & faster consumer checkout & merchant-to-bank settlement A step-by-step account of retail transaction follows:

• Step1: A customer presents a credit card for payment at a retail location

• Step2: The point-of-sale software directs the transaction information to the local network

• Step3: System verifies the source of the transaction and routes it.

• Step4: In this, transaction count and financial totals are confirmed between the terminal and the network

• Step5: In this, the system gathers all completed batches and processes the data in preparation for settlement

A merchant client takes one of two forms:

• Merchants are charged a flat fee per transaction for authorization and data capture services

• The other form of billing allows merchants to pay a "bundled" price for authorization, data capture, & settlement

Cost of Electronic Purchasing:

• Cash seems to be preferable to electronic payments, such as, on-line debit, credit, and electronic check authorization

• Consumers appear to spend more when using cards then when spending cash

(iii)Post purchase Interaction

• Returns and claims are an important part of the purchasing process

• Other complex customer service challenges arise in customized retailing are:

Inventory issues: To serve the customer properly, a company should inform a customer right away and if the item is in stock, a company must able to assign that piece to customer. Database access and compatibility issues: Customers should get kind of services by easy issues like calling an 800 number

Customer service issues: To clear the doubts of customer about product

Mercantile Models from the Merchant's Perspective

• To better understanding, it is necessary to examine the order management cycle (OMC).

• The OMC includes eight distinct activities.

• The actual details of OMC vary from industry to industry and also for individual products and services

• OMC has generic steps

(i) Order planning & Order generation.

(ii) Cost estimation & pricing.

(iii) Order receipt & entry.

(iv) Order selection & prioritization.

(v) Order Scheduling

(vi) Order fulfillment & delivery.

(vii) Order billing & account/payment management.

(viii) Post sales service.

Order planning & order Generation

• Order planning leads to order generation.

• Orders are generated in a no. of ways in the e-commerce environment.

• The sales force broadcasts ads (direct marketing), sends personalized e-mail to customers (cold calls), or creates a WWW page
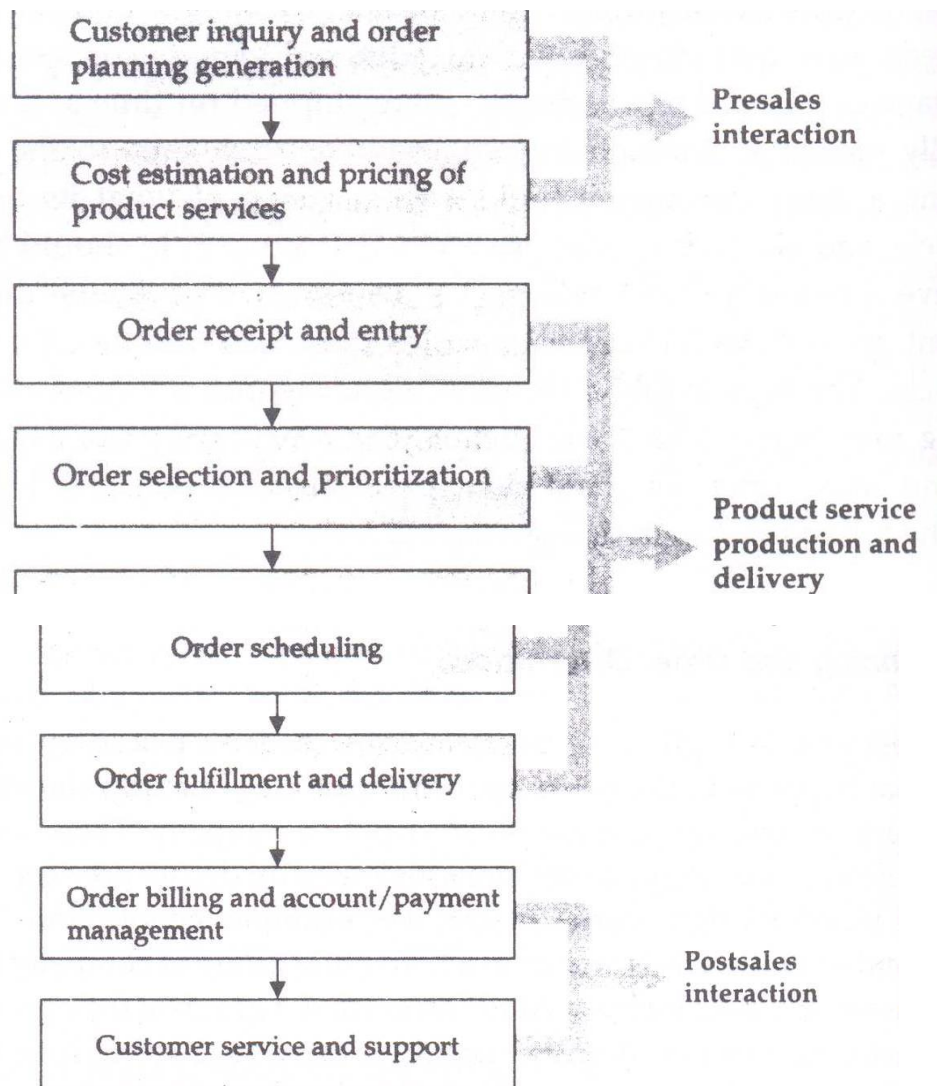

Figure 7.6 Order management cycle in e-commerce

Cost Estimation & pricing

• Pricing is the bridge between customer needs & company capabilities.

• Pricing at the individual order level depends on understanding the value to the customer that is generated by each order, evaluating the cost of filling each order; &instituting a system that enables the company to price each order based on its value & cost

Order Receipt & Entry

• After an acceptable price Quote, the customer enters the order receipt & entry phase of OMC.

• This was under the purview of departments variously titled customer service, order entry, the inside sales desk, or customer liaison.

Order Selection & Prioritization

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

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

Order Scheduling

• In this phase the prioritized orders get slotted into an actual production or operational sequence.

• This task is difficult because the different functional departments- sales, marketing,, customer service, operations, or production- may have conflicting goals, compensation systems, & organizational imperatives:

Production people seek to minimize equipment changeovers, while marketing & customerservice reps argue for special service for special customers.

Order Fulfillment & Delivery

• In this actual provision of the product or service is made.

• It involves multiple functions and locations.

Order Billing & Account/Payment Management

• After the order has been fulfilled & delivered, billing is given by finance staff.

• The billing function is designed to serve the needs and interests of the company, not the customer.

Post sales Service

• This phase plays an increasingly important role in all elements of a company's profit equation: customer, price, & cost.

• It can include such elements as physical installation of a product, repair & maintenance, customer training, equipment upgrading & disposal.

Electronic Payment Systems:

Definition:

Electronic Payment is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument (such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an intermediary, or by a legal tender. The various factors that have lead the financial institutions to make use of electronic payments are:

Decreasing technology cost:

The technology used in the networks is decreasing day by day, which is evident from the fact that computers are now dirt-cheap and Internet is becoming free almost everywhere in the world.

Reduced operational and processing cost:

Due to reduced technology cost the processing cost of various commerce activities becomes very less. A very simple reason to prove this is the fact that in electronic transactions we save both paper and time.

Increasing online commerce:

The above two factors have lead many institutions to go online and many others are following them.

We began E-Commerce with EDI, this was primarily for large business houses not for the common man. Many new technologies, innovations have lead to use of E-Commerce for the common man also. We will now briefly enumerate these innovations based on whom they affected:

Affecting the consumers:

Credit cards, Debit Cards, ATMs (Automated Teller Machines), Stored value cards, E-Banking.

Enabling online commerce:

Digital Cash, E-Cash, Smart cards (or Electronic Purse) and encrypted Credit cards.

Affecting Companies:

The payment mechanisms that a bank provides to a company have changed drastically. The Company can now directly deposit money into its employee's bank account. These transfers are done through Automated Transfer Houses.

There are also many problems with the traditional payment systems that are leading to its fade out. Some of them are enumerated below:

Lack of Convenience:

Traditional payment systems require the consumer to either send paper cheques by snail-mail or require him/her to physically come over and sign papers before performing a transaction. This may lead to annoying circumstances sometimes.

Lack of Security:

This is because the consumer has to send all confidential data on a paper, which is not encrypted, that too by post where it may be read by anyone.

Lack of Coverage:

When we talk in terms of current businesses, they span many countries or states. These business houses need faster transactions everywhere. This is not possible without the bank having branch near all of the companies offices. This statement is self-explanatory.

Lack of Eligibility:

Not all potential buyers may have a bank account.

Lack of support for micro-transactions:

Many transactions done on the Internet are of very low cost though they involve data flow between two entities in two countries. The same if done on paper may not be feasible at all.

We will now focus attention on the various ways available to pay online these methods of payment are still new even when seen as a technology. Each has its own benefits and shortcomings:

Electronic Tokens:

An electronic token is a digital analog of various forms of payment backed by a bank or financial institution. There are two types of tokens:

Real Time: (or Pre-paid tokens) - These are exchanged between buyer and seller, their users pre-pay for tokens that serve as currency. Transactions are settled with the exchange of these tokens. Examples of these are DigiCash, Debit Cards, Electronic purse etc.

Post Paid Tokens – are used with fund transfer instructions between the buyer and seller. Examples – Electronic cheques, Credit card data etc.

Electronic or Digital Cash:

This combines computerized convenience with security and privacy that improve upon paper cash. Cash is still the dominant form of payment as: The consumer still mistrusts the banks. The non-cash transactions are inefficiently cleared. In addition, due to negative real interests rates on bank deposits. Now we will enumerate some qualities of cash:

Cash is a legal tender i.e. payee is obligatory to take it.

It is negotiable i.e. can be given or traded to someone else.

It is a bearer instrument i.e. possession is proof of ownership.

It can be held & used by anyone, even those without a bank certificate.

It places no risk on part of acceptor.

The following are the limitations of Debit and Credit Cards:

They are identification cards owned by the issuer & restricted to one user i.e. cannot be given away.

They are not legal tender

Their usage requires an account relationship and authorization system.

Properties of Digital Cash

Must have a monetary value:

It must be backed by cash (currency), bank authorized credit or a bank certified cashier's check.

Must be interoperable or exchangeable as payment for other digital cash, paper cash, goods or services, lines of credit, bank notes or obligations, electronic benefit transfers and the like.

Must be storable and retrievable:

Cash could be stored on a remote computer's memory, in smart cards, or on other easily transported standard or special purpose devices. Remote storage or retrieval would allow users to exchange digital cash from home or office or while traveling.

Should not be easy to copy or tamper with while it is being exchanged. This is achieved by using the following technologies, these are nothing but new and very efficient versions of the old art of cryptography.

Digital cash is based on cryptographic systems called "Digital Signatures" similar to the signatures used by banks on paper cheques to authenticate a customer.

Purchase of digital cash from an online currency server (or bank) involves 2 steps:

Establishment of an account in this step we are given a unique digital number which also becomes our digital signature. As it is a number known only to the customer and the bank, forgery, which may be done in paper cheques becomes very difficult.

Maintenance of sufficient money in the account is required to back any purchase.

3. Electronic Cheques:

The electronic cheques are modeled on paper checks, except that they are initiated electronically. They use digital signatures for signing and endorsing and require the use of digital certificates to authenticate the payer, the payer's bank and bank account. They are delivered either by direct transmission using telephone lines or by public networks such as the Internet.

Benefits of electronic Cheques:

Well suited for clearing micro payments. Conventional cryptography of e-cheques makes them easier to process than systems based on public key cryptography (like digital cash).

They can serve corporate markets. Firms can use them in more cost-effective manner.

They create float and the availability of float is an important requirement of Commerce.

Types of electronic payment system: which one is better for your e-business

Development of Internet technologies has contributed to emergence of electronic money and online business. For those who work on the internet resources, e-currency is important, and the choice of e-payment system is particularly responsible.

The main types of electronic payment system represent different ways to transfer money the client:

Credit scheme. Typically, this type involve card payment system. The peculiarity of this type of electronic payment system is the presence of the card regulator (VISA, MasterCard, Maestro, Delta etc.) during the payment processing. In a nutshell, the funds arrive in the merchant account, and the processing center is responsible for the money transaction and the card data processing.

If you need to connect your business to the card payment system, the first thing to do is to apply to the processing center, but not the bank. There are several reasons for it:

- It is much more difficult to set things right with the bank because, this organization is responsible to the interbank and card regulators, and the processing center carries far less responsibility.
- The bank may refuse to deal with a business that does not fall under the certain categories. And it is impossible to get to know it in advance. In this case, the threat hangs over many new ideas for online businesses.
- The processing center is more flexible in the approach to working with the clients. In addition, they have IT-specialists, who will always be able to answer your questions.

In addition, usually the processing center is cooperating with several banks. So it is better to choose a processing center first (in fact, this organization will be responsible for the money transfer), and then the choice of a bank will be determined. Otherwise it will take a long time to conclude an agreement with the bank, and then there will be only hope that the bank is cooperating with a reliable processing center.

Debit scheme. This type includes payment systems that use electronic checks. Electronic checks have the same functions as the paper ones: it is an obligation of a bank to transfer money from the payer's account to a payee. The only difference is the electronic form of a check and digital signature.

The process of such payment looks like this:

- A payer writes a check, puts a digital signature on it.
- A payee presents a check to a payment system or a bank he work with.
- After checking the authenticity of a digital signature, the funds are transfered to the payee.

There are some payment systems that work with electronic checks like NetCash, NetChex, NetBilletc.

The system of electronic wallets. When it comes to this type of electronic payment system, you can successfully avoid the red tape, since each particular electronic

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payment system combines the operation of several types of organizations: responsibility, control and conditions of payment processing depends on the one payment system. Although there are certain legislative regulations regarding the operation of payment systems, this type of electronic payment system is still the easiest one to implement for e-business.

The examples of the electronic wallets are QIWI, Webmoney, Perfect Money, Paypal, Okpay, Paxumetc.

In addition, it should be mentioned that some of the electronic payment system (eg. PayPal and Moneybookers) offer intermediary services in financial transactions. In this case, the payment system will take the money of customers in its account and then send it to your account. You can use this if you have problems with the conclusion of agreement with banks or you just want to save your time. But keep in mind that this kind of service usually has relatively high fees that can be compared to the cost of services of a good processing center.

All the types of electronic payment system have its advantages and disadvantages. When you choose a payment method for your online service, you should take into account what type of electronic payment system your target audience prefer when it comes to paying for goods and services on the Internet, or it is even better to create multiple payment options, to reach a wider audience.

Different electronic payment systems brings more joy, if you face no problems while their exchange. Unichange.me - providing perfect exchange!

Smart Cards:
Smart card is a stored value card. It is a replacement to ATM, debit, charge and credit cards. Smart card carries out the functions of the above side cards. It is a plastic credit card containing a microprocessor and a storage unit. The smart card gives access to STM, debit facility, credit facility, charge facility and the electronic purse facility. Monetary values can be loaded in this card and it acts as an electronic purse. Cash management, foreign exchange services, transfer of funds etc.
Smart card is again similar to credit card and debit card in appearance but it has a small microprocessor chip embedded in it. It has the capacity to store customer work related/personal information. Smart card is also used to store money which is reduced as per usage. Smart card can be accessed only using a PIN of customer. Smart cards are secure as they stores information in encrypted format and are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards

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Credit Card

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

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

Credit card payment process

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

Unit-III –Electronic Data Interchange (EDI)

Introduction

Traditional electronic data interchange (EDI) has been evolving for approximately 25 years and has truly become the paperless environment that is so often talked about. EDI is a complicated mixture of three disciplines: business, data processing, and data communications. This paper examines the concepts from the perspectives of each discipline. Internet standards are excluded from the discussion of communications protocols, since the audience is probably already familiar with SMTP, MIME, and other Internet messaging protocols.

What is EDI?

Since EDI is commonly defined as the direct computer-to-computer exchange of standard business forms, it clearly requires a business process. Because the key idea involved is the exchange of documents that allow a business application to take place without human intervention, data processing is clearly necessary for application processing. Data communication is then necessary for the exchange to take place. It is the marrying of these three disciplines that allows the "paperless trading" that comprises EDI technologies. Besides the three career disciplines that are internal to the organization, three other issues are important for EDI trading to take place: standardization of formats, security, and value-added networks (VANs).

Looking closer at EDI

EDI is commonly defined as the direct computer-to-computer exchange of standard business forms. The key idea involved is the exchange of documents that allow a business application to take place without human intervention. The ability to send business documents between machines simplifies and expedites the business process itself. Many businesses choose EDI as a fast, inexpensive, and safe method of sending purchase orders, requests for quotations, quotations, invoices, payments, and other frequently used business documents.

Often today one will see the term EC/electronic data interchange (EC/EDI). This term has evolved from placing EDI under the EC (EC) umbrella, EC being the broad view of electronic trading. EDI is defined as the interprocess (computer application to computer application) communication of business information in a standardized electronic form. EC includes EDI, but recognizes the need for interpersonal (human to human) communications, the transfer of moneys, and the sharing of common databases as additional activities that aid in the efficient conduct of business. By incorporating a wide range of technologies, EC is much broader than EDI. However, the focus of this document in on EDI, not EC.

Comparing EDI and fax

Similarities exist between EDI and fax in that both use telephones lines and both can travel from computer to computer (Sawabini, 1995). There are distinct differences however. Fax is primarily paper based and requires a human interface. Fax receipts are not generally acceptable to applications. Fax machines accept nonstandard data formats, and anything that can be scanned can be faxed, whereas EDI requires standard message formats between trading partners.

Comparing EDI and e-mail

Similarities also exist between e-mail and EDI. Both travel from computer to computer and both use an electronic mailbox. However, three of the four differences listed for EDI vs. fax also apply to EDI vs. e-mail: e-mail message format is not standard, e-mail requires human interface, and e-mail is not acceptable to applications.

Applications
Benefits of EDI

Cost & time savings, Speed, Accuracy, Security, System Integration, Just-In-Time Support.

Reduced paper-based systems, i.e. record maintenance, space, paper, postage costs

Improved problem resolution & customer service

Expanded customer/supplier base or suppliers with no EDI program lose business

EDI Applications in Business

Four different scenarios in industries that use EDI extensively:

International or cross-border trade

Electronic funds transfer

Health care EDI for insurance claims processing

Manufacturing & retail procurement

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

Role of EDI in international trade

EDI facilitates the smooth flow of information

It reduces paper work

EDI benefits for international trade are

Reduced transaction expenditures

Quicker movement of imported & exported goods

Improved customer service through "track & trace" programs

Faster customs clearance & reduced opportunities for corruption, a huge problem in trade

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Interbank Electronic Funds Transfer (EFT)

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

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

Automated Clearinghouse (ACH) Transfers

ACH transfers are used to process high volumes of relatively small-dollar payments for settlement in one or two business days

It provides services: preauthorized debits, such as repetitive bill payments; & consumer- initiated payments.

Health care EDI for insurance EDI

Providing good & affordable health care is a universal problem

EDI is becoming a permanent fixture in both insurance & health care industries as medical provider, patients, & payers

Electronic claim processing is quick & reduces the administrative costs of health care.

Using EDI software, service providers prepare the forms & submit claims via communication lines to the value-added network service provider

The company then edits sorts & distributes forms to the payer. If necessary, the insurance company can electronically route transactions to a third-party for price evaluation. Claims submission also receives reports regarding claim status & request for additional information

Manufacturing & retail procurement using EDI

These are heavy users of EDI

In manufacturing, EDI is used to support just-in-time.

In retailing, EDI is used to support quick response

Just-In-Time & EDI

Companies using JIT & EDI calculates how many parts are needed each day based on the production schedule & electronically transmit orders.

Delivery has to be responsive, or it will cost too much in money & time.

Getting data to suppliers quickly

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

Quick Response & EDI

For the customer, QR means better service & availability of a wider range of products

For the retailer & supplier, QR may mean survival in a competitive marketplace

Much focus of QR is in reduction of lead times using event-driven EDI.

In QR, EDI documents include purchase orders, shipping notices, invoices, inventory position, catalogs, & order status

Data communications and EDI

The other technological field that is heavily involved in EDI implementation is data communications. Once the standards have been employed and the required software is in place, the EDI participant still needs to have the ability to communicate with remote trading partners to take advantage of EDI.

Transport mechanisms move the data

Data must be transported across telecommunications lines in order for the trading partners to trade information. Following are some basic concepts that describe mechanisms and methods used in this transport of data:

Direct connect is the term used to indicate that two EDI trading partners trade information directly to each other without a third-party connection service. Direct connects are normally used by large corporations for intra company EDI transactions and for intercompany transactions with trading partners that have established high-volume rates of exchange of EDI data.

Modems are heavily used by EDI practitioners today. Modem-to-modem connections provide a level of security and reliability that long-time practitioners are reluctant to give up. The standard in the industry, as this paper is written, is transmission by binary synchronous modem or "bisync." This method allows for high-speed continuous transmission in which the sending and receiving modems are controlled by clock pulses. The clock pulses regulate the rate and timing of the data flow.

Routers, although not the primary transport mechanism for EDI transactions today, have the potential to become the de facto standard of transmission for high-volume traffic. Currently, routers are used mainly over leased lines, requiring expensive setups and ongoing data communications transport costs.

Communications protocols standardize the data formats

EDI transactions can be passed between trading partners using standard transmission protocols. Graphic images, charts, and diagrams must be transmitted using protocols that allow the transfer of binary data. Some of these common standards are SMTP, MIME, X.400, X.435, and X.500. Internet Protocols are excluded from this discussion as the audience is already very familiar with them.

X.400 is an electronic messaging standard that was developed by the Consultative Committee on International Telegraph and Telephone, which is tasked with developing standards to enable incompatible networks and computer systems to exchange data. In

this standard, an X.400 header precedes the message itself. The header allows the sender of the message to specify information relating to the transmission and delivery and notice requests.

The architecture of the X.400 standard calls for an outer envelope that is application independent and is used to route the message. Within the outer envelope lies the content header, again application independent, which is used to deliver the message to the recipient. A message transfer agent (MTA) receives the message, discards the outer envelope, and then reads the header to determine the recipient. The message itself is composed of body parts, each body part being an application-specific message.

X.435 is a standard that further enhances the X.400 standard to make it deal more effectively with EDI transmission requirements. X.435 is the specification for the EDI body part that attaches to the X.400 message.

X.500 is an addressing directory containing the names and characteristics of electronic messaging receivers. X.500 facilitates the delivery of X.400 messages, including those that include the X.435 standard. The idea is the production of a global electronic directory and a guide to associated databases so the user can find an e-mail address if it is needed and not known.

The business process and EDI

Any business application that can be improved through paperless trading in a fast, efficient environment is a good candidate for EDI. EDI is currently widely used by the airline industry, banking industry, credit card industry, and auto industry. The current push in the EDI world comes from companies who wish to trade with each other electronically--buyers and their suppliers--hence the term "trading partners."

Applications of EDI in Business

The business process examined here to which to apply EDI concepts is the procurement process. This business process was chosen for two reasons. First, within industry itself, new EDI technology is developing fastest in this area. Second, the President has issued an initiative to streamline government procurement through the use of EC. Since the initiative was announced in October 1993, the thrust within the government has been to implement the initiative using EDI technologies. These factors make the procurement process the most relevant business process to examine at this time.

The procurement process normally begins with the buyer being made aware of a need within the organization to make a purchase. As soon as a need is established and precisely described, the buyer begins the process of selecting the supplier that will be used. Routine items may be purchased using suppliers that have already been contracted with. New items or high-value items may require investigation by the buyer in selecting an appropriate supplier.

The buyer will select a preliminary group of suppliers and then employ the methods of competitive bidding, negotiation, or a combination of the two to secure the final supplier. When competitive bidding is used, the buyer issues an RFQ to the suppliers

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that the buyer might be willing to do business with. Typically, the RFQ will contain the same basic information that will be included on the purchase order.

When a supplier receives an RFQ that the supplier has an interest in bidding on, the supplier issues a quotation to the buyer. The quotation will contain pricing information so the buyer can do a price comparison between the suppliers. For instance, an RFQ might be issued for 200 gallons of white, latex-based paint. The supplier who is issuing a quotation may quote a price of $xxx.xx.

Once a supplier has been selected, the purchasing department issues a serially numbered purchase order. The purchase order itself becomes a legally binding contract. For this reason the buyer will carefully prepare the purchase order and ensure that the wording is precise and specific. Any drawings, diagrams, or related documentation that is necessary to precisely describe the item being purchased will be incorporated or referenced in the purchase order. Additionally any conditions or sampling plans will be stated precisely.

Normally a list of terms and conditions designed to give legal protection to the buyer on various matters prescribed by law are incorporated in, or attached to, all purchase orders as boilerplate to those orders. These boilerplate terms and conditions cover a wide range of concerns including, contract acceptance, delivery performance and contract termination, shipment rejections, assignment and contracting or the order, patent rights and infringements, warranties, compliance with regulations, and invoicing and payment procedures.

Change orders are required when a company makes a change in the contract after a purchase order has been issued. The buyer will issue the change order and, when accepted by the supplier, the change order either supplements or replaces the original purchase order.

The original copy of the purchase order constitutes a legal offer to buy. The purchase contract then comes into existence when the contract is performed or when formal acknowledgment of acceptance of the offer is made.

Normal business methods suggest that the supplier may not bother to acknowledge the offer if the items are immediately shipped to the buyer. When the items are not immediately shipped, then the supplier should send the acknowledgment back to the buyer.

The supplier may acknowledge the buyer's order accepting the buyer's terms and conditions, or may acknowledge and incorporate the supplier's own terms and conditions in the acknowledgment. If the seller's terms are different than the buyer's, the law allows them to be incorporated into the contract as long as they do not alter the buyer's intent or unless the buyer files a written objection to the inclusion of new terms and conditions. In general, terms and conditions that are in conflict between buyer and seller are excluded from the contract, leaving the settlement to negotiation or suit. For

this reason it is imperative that the buyer beware of the terms and conditions in the order acceptance.

Security and Privacy issues

Security

One of the major roles that is provided by the data communications technology is the ability to apply security to EDI transactions so that the transactions will not be tampered with or observed, depending on the level of security needed.

Confidentiality

Confidentiality requires that all communications between parties are restricted to the parties involved in the transaction. This confidentiality is an essential component in user privacy, as well as in protection of proprietary information and as a deterrent to theft of information services. Confidentiality is concerned with the unauthorized viewing of confidential or proprietary data that one or both of the trading partners does not want known by others. Confidentiality is provided by encryption.

Encryption is the scrambling of data so that it indecipherable to anyone except the intended recipient. Encryption prevents snoopers, hackers, and other prying eyes from viewing data that is transmitted over telecommunications channels. There are two basic encryption schemes, private-key and public-key encryption. Encryption, in general, is cumbersome and expensive.

Private-key encryption requires that both sending and receiving parties have the same private-encryption keys. The sender encrypts the data using his key. The receiver then decrypts the message using his identical key. There are several disadvantages to private-key encryption. In order to remain secure, the keys must be changed periodically and the users must be in synch as to the actual keys being used.

Public-key encryption is gaining wide spread acceptance as the preferred encryption technology. With public-key encryption, a message recipient generates a matched set of keys, one public key and one private key. The recipient broadcasts the public key to all senders or to a public location where the key can be easily retrieved. Any sender who needs to send the receiver an encrypted message uses the recipient's public key to encrypt the message. The private key, which is held in private by the recipient is the only key that can decipher messages encrypted with the matched public key. This schema requires that the private key cannot be generated from the public key.

Public key technology is the direction encryption technology is currently headed. With the advent of X.500, databases will be built to store public keys and enhance the technology significantly.

Authentication

Both parties should feel comfortable that they are communicating with the party with whom they think they are doing business. A normal means of providing authentication is through the use of passwords.

The latest technology to provide authentication is through the use of digital certificates that function much like ID cards. The digital certificate has multiple functions, including browser authentication.

Data Integrity

Data sent as part of a transaction should not be modifiable in transit. Similarly, it should not be possible to modify data in storage. Data integrity is a guarantee that what was sent by the sender is actually what is received by the receiver. This is necessary if there is a need to ensure that the data has not been changed either inadvertently or maliciously. However, authentication schemes do not hide data from prying eyes. Providing data integrity is generally cumbersome and not used unless one of the trading partners requires it. The normal mechanism for acquiring data integrity is for the sender to run an algorithm against the data that is being transmitted and to transmit the result of the algorithm separately from the transmission. Upon receipt of the transmission, the receiver runs the identical algorithm and then compares the results. If the results are identical, then data has not been modified.

Nonrepudiation

Neither party should be able to deny having participated in a transaction after the fact. The current technology ensures this through the use of digital signatures.

Electronic signatures are the computerized version of the signature function. Signatures are needed in some business applications for authorization purposes. For example, a contracting officer may have a specified spending limit, say $25,000. If that contracting officer decides to place an order for $30,000, the seller may not have the authority to fill the order because the signature of the contracting officer's supervisor is needed on all orders over $25,000. The authorization limits normally will have been agreed upon through a trading partner agreement.

A digital signature algorithm can be used to generate digital signatures. The digital signature itself is used to detect unauthorized modification to data and to authenticate the identity of the signature. The digital signature is also useful to the recipient as a nonrepudiation device whereby the recipient can prove to a third party that the signature was in fact generated by the signatory. Thus the signatory cannot repudiate the signature at a later date.

EDI: Legal, Security, & Privacy Issues

• In EDI, legal issues and computer security are important.

• Companies that deal with EDI should take the services of a lawyer during the design of EDI

applications, so that evidentiary/admissibility safeguards are implemented.

There are 3 types of communications when considered for EDI issues:

1) Instantaneous: – If the parties are face to face or use an instantaneous communication medium such as telephone.

2) Delayed with postal service: – The mailbox rule provides that an acceptance

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communicated via

postal service mail is effectively communicated when dispatched or physically deposited.

3) Delayed with non postal service: – EX: – Couriers, telegram

• Messaging systems combine features of delayed and instantaneous
• Messaging delay is a function of the specific applications, message routing, networks traversed, system configuration and other technical factors.

One way of legal & security issue is Digital signatures. The technical uses of digital signatures are :-

1. Messages are time- stamped or digitally notarized to establish dates and times at which a recipient hard access or even read a particular message.

2. These signatures are to replace handwritten signatures, as it is same legal status as handwritten signatures.

3. Digital signatures should have greater legal authority than handwritten signatures.

EDI: Legal, Security and Privacy Issues by BMS Team

Legal Status of EDI Messages

To understand the legal framework, let's take a look on three modes of communication types: Instantaneous communication, delayed communication via the U.S. Postal Service (USPS), & delayed communication via non-USPS couriers;

Instantaneous. If the parties are face to face or use an instantaneous communication medium such as the telephone

Delayed (USPS). The "mailbox rule" provides that an acceptance communicated via USPS mail is effectively when dispatched

Delayed (non-USPS). Acceptances transmitted via telegram, mailgram, & electronic messages, are communicated & operable upon receipt.

Digital Signatures & EDI

Digital signatures might be time-stamped or digitally notarized to establish dates & times

If digital signatures are to replace handwritten signatures, they must have the same legal status as handwritten signatures.

It provides a means for a third party to verify that notarized object is authentic.

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EDI & Electronic Commerce

New types of EDI are traditional EDI & open EDI

Traditional EDI

It replaces the paper forms with almost strict one-to-one mappings between parts of a paper form to fields of electronic forms called transaction sets.

It covers two basic business areas:

Trade data Interchange (TDI) encompasses transactions such as purchase orders, invoice & acknowledgements.

Electronic Funds Transfer (EFT) is the automatic transfer of funds among banks & other organizations

It is divided into 2 camps: old EDI & new EDI.

Old EDI is a term created by those working on the next generation of EDI standards in order to differentiate between the present & the future.

Old EDI

Automating the exchange of information pertinent to business activity

It is referred as the current EDI-standardization process where it allows every company to choose its own, unique, proprietary version

New EDI

It is refocusing of the standardization process.

In this, the structure of the interchanges is determined by the programmer who writes a program.

It removes long standardization process.

Open EDI

It is a business procedure that enables e-commerce to occur between organizations where the interaction is of short duration.

It is process of doing EDI without the upfront trading partner agreement that is currently signed by the trading partners. The goal is to sustain ad hoc business or short-term trading relationships using simpler legal codes.

It is a law of contract within the context of e-commerce where transactions are not repeated over long period of time.

EDI Software

EDI software can be divided into four components:

1.Main Application:

The organisation's inventory, purchasing and order processing programs. These may be existing applications and may require some modification to maintain trading partners reference files detailing EDI capability and audit trails of EDI messages.

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2.*Application Interface*:

This interface provides the link between the main application program (i.e. Purchasing/Order Entry Application) and the EDI software. It provides the necessary input/output translation into standard EDI message formats from a *flat file*. The application interface is specific to the organisation's main application and will need to be developed

3.*Flat File*

Flat files contain EDI messages in standard formats and can be considered a common file between the Application and EDI software.

4.*EDI Software*

This program takes the standard EDI message in the flat file and performs the following functions:

· Translation (from flat file data format to EDI standard format)
· Control & Auditing
· Administration & Reporting
· Communications

EDI Mailbox

The EDI Mailbox is also commonly referred to as:

· EDI clearing house
· Third party network
· value added network (VAN)

EDI network

Its main function is to provide temporary storage of EDI messages until they are collected by a recipient subscriber provide a single reference point for operational difficulties with EDI communications

· Acts as a security wall or buffer between trading partners
· provide independent message authentication, security and auditing
· provide support for multiple trading partners with incompatible computer systems.

Some EDI Mailboxes/networks in Australia:

· Telecom Plus
· General Electric Information Services (GEIS)
· National Electronic Information Services (NEIS)
· OTC Electronics Trading
• Paxus Service

EDI Software Implementation

EDI software has 4 layers:

Business application

Internal format conversion

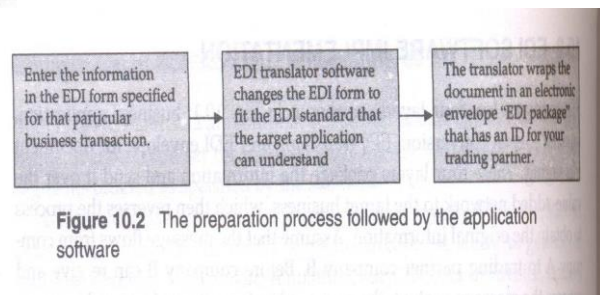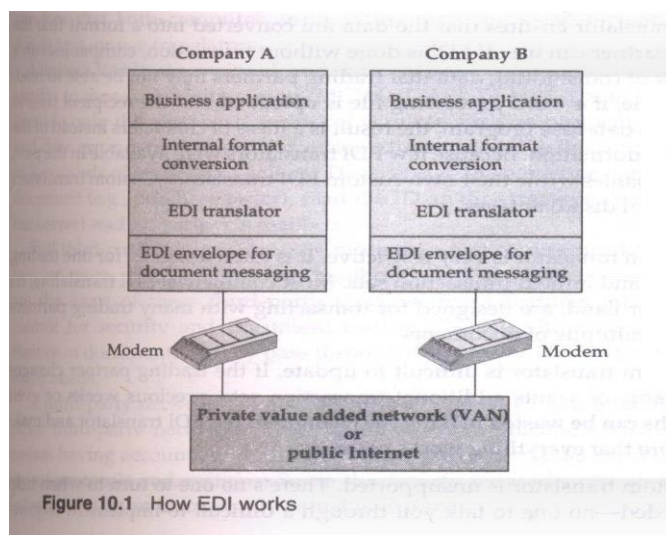EDI Translator

EDI envelope for document messaging

These 4 layers package the information & send it over the value-added network to the target business, which then reverses the process to obtain the original information

EDI Business Application Layer

It creates a document, an invoice.

Sends to EDI translator, reformats the invoice into an EDI standard.

If there are on the same type of computer, the data move faster

Figure 10.1 How EDI works

Figure 10.2 The preparation process followed by the application software

EDI Envelope for Message Transport

The X.400 & X.435 Envelopes

The X.400 standard was meant to the universal answer to e-mail interconnectivity

It promises much & to date, delivers little.

The work on X.400 began in1980

It is the open standard for mail interchange

The standard exists in 3 versions: 1984, 1988, & 1992.

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EDI Software Implementation

The X.435 inserts a special field in an X.400 envelope to identify an EDI message

It includes data encryption; integrity; notification of message delivery & nondelivery; & nonrepudiation of delivery

It is secure, reliable way to send EDI & accompanying files within the same message. Purchase orders, invoices, drawings, e-mail- all could be sent with end-to-end acknowledgment of message receipt.

VALUE ADDED NETWORKS

A value-added network, or VAN, involves the use of a common carrier's phone lines to allow business-to-business network communication; the network is "value-added" because it has various services and enhancements that improve the way business applications communicate with each other. The use of a VAN provides communication channels among supply chain and trading partners by allowing the transmission of data and its translation between formats. The automated communications achieved through a VAN can help a business and its trading partners engage in more effective e-commerce transactions through the encryption, retransmission, and support of messages, but from a small business's cost perspective, the implementation of a VAN can also be expensive and a resource-intensive endeavor.

Faster Transaction Processing

In comparison to manual transaction processing, a VAN can improve the speed at which transactions are completed. By transmitting data electronically, information moves instantly from point A to point B, providing faster access to operating information. Though a VAN transports messages similar to a cable Internet connection, its "value" comes in the form of audit information added to messages. Data may be modified as it passes through an error detection and correction process, and during conversion between communication protocols, such as TCP and FTP. Unlike a slower and paper-intensive manual system, a VAN's efficient way of handling transactions and communications can improve your bottom line results. The benefits related to the use of a VAN benefit all the parties involved, which can lead to stronger business relationships.

Better Communications

Compared to a manual processing system, a VAN reduces the costs associated with business communications. It decreases the need for paper transfers, and allows tasks such as ordering inventory and processing payments to be completed more efficiently through electronic means. Today's VAN provides a host of Web services, such as network performance monitoring and directory management. It also supports Web technology standards, such as XML. VANs have evolved to accommodate the latest e-

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commerce applications, but their basic principle of providing dependable and secure communications across a network endures.

Cost of Implementation

Like many technology upgrades or implementations, the addition of a VAN may not be cost effective for many small to medium-sized businesses. It's important that knowledgeable personnel are involved in the conversion to a VAN, and these individuals should also provide training to your staff on the applications the network will support. Another option is to obtain VAN services from a third party that specializes in these types of IT solutions. All of these considerations can carry a prohibitive price tag that may be out of reach for certain businesses.

Ongoing Network Support

A VAN, like most computer technologies, requires ongoing technical support and maintenance. Your business may need to hire experienced staff to manage an in-house network, or may need to utilize the services of an independent support provider for an outsourced network solution. Ongoing maintenance increases the cost of using the network and adds complexities to your operations that need to be managed appropriately. Ultimately, your company will only benefit if the advantages derived from a VAN outweigh its disadvantages.

Supply chain management
Definitions

Supply Chain Management (SCM) is the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption.

According to the Council of Supply Chain Management Professionals (CSCMP),
a professional association that developed a definition in 2004, Supply Chain Management "encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities". Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, Supply Chain Management integrates supply and demand management within and across companies.

According to Cohen & Lee (1988)

Supply Chain Management is "The network of organizations that are having linkages, both upstream and downstream, in different processes and activities that produces and delivers the value in form of products and services in the hands of ultimate consumer." Thus a shirt manufacturer is a part of supply chain that extends up stream through the weaves of fabrics to the spinners and the manufacturers of fibers, and down stream through distributions and retailers to the final consumer. Though each of these organizations are dependent on each other yet traditionally do not closely cooperate with each other. An integrated supply chain management streamlines processes and increases profitability by delivering the right product to the right place, at the right time, and at the lowest possible cost.

According to Ganeshan & Harrison (2001)

Supply Chain Management is a "systems approach to managing the entire flow of information, materials, and services from raw materials suppliers through factories and warehouses to the end customer." Supply chain event management (abbreviated as SCEM) is a consideration of all possible occurring events and factors that can cause a disruption in a supply chain. With SCEM possible scenarios can be created and solutions can be planned. Some experts distinguish supply chain management and logistics management, while others consider the terms to be interchangeable. From the point of view of an enterprise, the scope of supply chain management is usually bounded on the supply side by your supplier's suppliers and on the customer side by your customer's customers. Supply chain management is also a category of software products.

COMPONENTS OF SUPPLY CHAIN MANAGEMENT

The following are the five basic components of Supply Chain Management:

Plan:-

      This is the strategic portion of SCM. You need a strategy for managing all the resources that go toward meeting customer demand for your product or service. A big piece of planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

Source:-

      Choose the suppliers that will deliver the goods and services you need to create your product. Develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And put together processes for managing the inventory of goods and services you receive from suppliers, including receiving shipments, verifying them, transferring them to your manufacturing facilities and authorizing supplier payments.

Make:-

      This is the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery. As the most metric-intensive portion of the supply chain, measure quality levels, production output and worker productivity.

Deliver:-

This is the part that many insiders refer to as logistics. Coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

Return:-

The problem part of the supply chain. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

OBJECTIVES/NEED FOR SCM

      Traditionally, marketing, distribution, planning, manufacturing, and the purchasing organizations along the supply chain operated independently. These organizations have their own objectives and these are often conflicting. Marketing's objective of high customer service and maximum sales dollars conflict with manufacturing and distribution goals. Many manufacturing operations are designed to maximize throughput and lower costs with little consideration for the impact on inventory levels and distribution capabilities. Purchasing contracts are often negotiated with very little information beyond historical buying patterns.

      The result of these factors is that there is not a single, integrated plan for the organization---there were as many plans as businesses. Clearly, there is a need for a mechanism through which these different functions can be integrated together. Supply chain management is a strategy through which such integration can be achieved.

      Moreover, shortened product life cycles, increased competition, and heightened expectations of customers have forced many leading edge companies to move from physical logistic management towards more advanced supply chain management. Additionally, in recent years it has become clear that many companies have reduced their manufacturing costs as much as it is practically possible. Therefore, in many cases, the only possible way to further reduce costs and lead times is with effective supply chain management.

      In addition to cost reduction, the supply chain management approach also facilitates customer service improvements. It enables the management of: inventories, transportation systems and whole distribution networks so that organizations are able to meet or even exceed their customers' expectations.

The *major objective of supply chain management* is to reduce or eliminate the buffers of inventory that exists between originations in chain through the sharing of information on demand and current stock levels.Broadly, an organization needs an efficient and proper supply chain management system so that the following strategic and competitive areas can be used to their full advantage if a supply chain management system is properly implemented.

Fulfillment of raw materials:

Ensuring the right quantity of parts for production or products for sale arrive at the right time. This is enabled through efficient communication, ensuring that orders are placed with the appropriate amount of time available to be filled. The supply chain management system also allows a company to constantly see what is on stock and making sure that the right quantities are ordered to replace stock.

Logistics:

The cost of transporting materials as low as possible consistent with safe and reliable delivery. Here the supply chain management system enables a company to have constant contact with its distribution team, which could consist of trucks, trains, or any other mode of transportation. The system can allow the company to track where the required materials are at all times. As well, it may be cost effective to share transportation costs with a partner company if shipments are not large enough to fill a whole truck and this again, allows the company to make this decision.

Smooth Production:

Ensuring production lines function smoothly because high-quality parts are available when needed. Production can run smoothly as a result of fulfillment and logistics being implemented correctly. If the correct quantity is not ordered and delivered at the requested time, production will be halted, but having an effective supply chain management system in place will ensure that production can always run smoothly without delays due to ordering and transportation.

Increase in Revenue & profit:

Ensuring no sales is lost because shelves are empty. Managing the supply chain improves a company flexibility to respond to unforeseen changes in demand and supply. Because of this, a company has the ability to produce goods at lower prices and distribute them to consumers quicker then companies without supply chain management thus increasing the overall profit.

Reduction in Costs:

Keeping the cost of purchased parts and products at acceptable levels. Supply chain management reduces costs by increasing inventory turnover on the shop floor and in the warehouse controlling the quality of goods thus reducing internal and external failure costs and working with suppliers to produce the most cost efficient means of manufacturing a product.

Mutual Success:

Among supply chain partners ensures mutual success. Collaborative planning, forecasting and replenishment (CPFR) is a longer-term commitment, joint work on quality, and support by the buyer of the supplier's managerial, technological, and capacity development. This relationship allows a company to have access to current, reliable information, obtain lower inventory levels, cut lead times, enhance product quality, improve forecasting accuracy and ultimately improve customer service and overall profits. The suppliers also benefit from the cooperative relationship through increased buyer input from suggestions on improving the quality and costs and though shared savings. Consumers can benefit as well through higher quality goods provided at a lower cost.

ACTIVITIES/FUNCTIONS OF SCM

Supply chain management is a cross-functional approach to managing the movement of raw materials into an organization and the movement of finished goods out of the organization toward the end-consumer. As corporations strive to focus on core competencies and become more flexible, they have reduced their ownership of raw materials sources and distribution channels. These functions are increasingly being outsourced to other corporations that can perform the activities better or more cost effectively. The effect has been to increase the number of companies involved in satisfying consumer demand, while reducing management control of daily logistics operations. Less control and more supply chain partners led to the creation of supply chain management concepts. The purpose of supply chain management is to improve trust and collaboration among supply chain partners, thus improving inventory visibility and improving inventory velocity.

Several models have been proposed for understanding the activities required managing material movements across organizational and functional boundaries. SCOR is a supply chain management model promoted by the Supply-Chain Council. Another model is the SCM Model proposed by the Global Supply Chain Forum (GSCF). Supply chain activities can be grouped into strategic, tactical, and operational levels of activities.

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Strategic:-

Strategic network optimization, including the number, location, and size of warehouses, distribution centers and facilities. Strategic partnership with suppliers, distributors, and customers, creating communication channels for critical information and operational improvements such as cross docking, direct shipping, and third-party logistics. Products design coordination, so that new and existing products can be optimally integrated into the supply chain. Information Technology infrastructure, to support supply chain operations. Where to make and what to make or buy decisions.

Tactical:-

Sourcing contracts and other purchasing decisions. Production decisions, including contracting, locations, scheduling, and planning process definition. Inventory decisions, including quantity, location, and quality of inventory. Transportation strategy, including frequency, routes, and contracting. Benchmarking of all operations against competitors and implementation of best practices throughout the enterprise.

Operational:-

Daily production and distribution planning, including all nodes in the supply chain. Production scheduling for each manufacturing facility in the supply chain (minute by minute). Demand planning and forecasting, coordinating the demand forecast of all customers and sharing the forecast with all suppliers. Sourcing planning, including current inventory and forecast demand, in collaboration with all suppliers. Inbound operations, including transportation from suppliers and receiving inventory. Production operations, including the consumption of materials and flow of finished goods. Outbound operations, including all fulfillment activities and transportation to customers. Order promising, accounting for all constraints in the supply chain, including all suppliers, manufacturing facilities, distribution centers, and other customers. Performance tracking of all activities.

UNIT-IV

Marketing on the Internet: Advertising on the Internet – Charting the On-Line Marketing Process

Advertising and Marketing on the Internet

    The new age of information-based marketing.

    Advertising on the internet.

    Marketing research. The New Age of Information-Based Marketing The new age of information-based marketing differentiate interactive marketing into four areas: Retailers vs manufacturers

    Target and micromarketing

    Small business vs large business

 ☐ Regulatory and legal implications of cyberspace marketing. Retailers' vs Manufacturers:

 The role of Retailers and manufacturers are fast reversing in electronic commerce. Retailer's vs Manufacturers have the fallowing methods:

    Market research and customer prospecting.

    Market presence method

     Product or services building method

    Information-based products pricing and priority method.

Target and Micromarketing:

    Electronic commerce, technology has put target and micromarketing within the research of small business.

    It gives information to the micro marketers not only about its own business but also consumer's information.

    Consumer target is two-way flow of communication between seller and buyer.

    Direct mail and telemarketing are two fast growing ways to micro market.

     Technology is an essential tool in micromarketing.

There are two main types of micromarketing:

    Direct-relationship micromarketing: is aimed at stimulating sales at retail establishments through direct contacts with consumers.

    Direct-order micromarketing: is focused on selling products directly to consumers in their homes or businesses.

Small vs large: Thread avoid vs goliath syndrome

    The key distinction between small and large business remains access to national and international marketing for advertising purposes.

    Today, exorbitant advertising cost represents the barrier to reaching the customer effectively. Internet and other networks plays good role in advertising.

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    The major difference between the internet and other I-way advertising media are ownership and membership fees.

    Due to the empowering effect of internet-facilitated advertising however, the balance of power between large and small companies may change in future. Advertising on the Internet   The notion of advertising and marketing became inevitable after 1991 when the internet was opened for commercial traffic.

    There are very good reasons for embracing the inevitability of growing of commercial advertising on the internet: - Advertising conveys much needed information Advertising generates significant revenue Key components for making internet advertising effectively are:

    Advertising process

    Core content

     Supporting content

    Market and consumer research

    Repeat customers

On-line advertising paradigms:

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

1. Active or push-based advertising

2. Passive or pull-based advertising

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

 The broadcast model:

 Broadcasting message provides a means for reaching a great number of people in short period of time. It mimics the traditional model, in which customer id exposed to the advertisement during TV programming.

 It basically uses direct mail, spot television, cable television.

   Text-based broadcast messages also used in advertising in Usenet news groups.

 The junk mail model:

 Disadvantage of the direct mail include relatively high cost per contact.

Junk mail is the just poorly targeted direct mail.

 It is most intrusive of all forms of internet advertising, because it is easily implemented using electronic mail.

 Junk mail creates unwanted expense

Passive or pull-based advertising

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

On-line pull-based advertising includes the following:

 Billboards

 Catalogs or yellow pages directories:

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endorsements Based on the above three we have the following models: The billboards or www model: Billboard advertising is often used to remind the customer of the advertising messages communicated through other media. The advantage of this model is no customer charges. In this message must be simple, direct. Catalog and yellow pages directory model: Traditionally, the most visible directory service of advertising is the yellow pages. Catalog model is the least intrusive model but requires active search on the part of customer. Yellow pages are low in cost in terms of production and placement. Disadvantage of yellow page include lack of timeliness and little creative flexibility. Customer endorsement model: In endorsements people tell their experiences with products and services. These are in question and answer format. Marketing Research Market research is extremely important for companies in terms of how they allocate their advertising dollars in sales promotions, how they introduce new products, how they target new markets. Broadly marketing research is divided into three faces: Data collection   Data organization   Data analysis and sense making Data collection: Markets mainly relied on source database for understanding consumer behavior. Source data base mainly comprise of numeric information. Delivery of source database services fallows two main patterns. Data collect and collate data, making it available by data base producers. Data collect and collate data, making it available by central hosts like CompuServe, American online..etc. Data organization: Everyone is collecting data from electronic commerce, but very few are organizing it effectively for developing a marketing strategy. The key abilities in their environment are: Leverage its established database into customized offerings by audience and markets. Leverage its established database in terms of horizontal growth. Data analysis and sense making: The ability to link database to analytic tools like econometric programs and forecasting models is called data analysis. Market research is undergoing major changes; the next generation of source database will definitely include multimedia information.

Introduction :
1. Advertising and Marketing
2. Reputation, Prediction and Recommendation Systems
3. Social Networks 4. Peer to Peer Systems
Internet Commerce Vs. Regular Commerce
1. Efficiency: Internet commerce enables monetization of the long tail. For example, a company like blinds.com which would have had to operate stores across the country (requires huge investment) to sell blinds (one of the cheaper items in a house ie. the long tail) can through internet commerce maintain centralized inventory in one place and sell products across the country through a website.
2. Pull driven marketing and advertising: Advertising on search engines like Google and Yahoo enables businesses to target customers as and when they search for related

information. For example, a person searching for 'Xbox' is likely to be interested in buying the Xbox or more generally, video gaming systems and therefore advertisements about the Xbox are more likely to result in a sale when shown to this person. Notice that the user's action, ie. his searching for information, resulted in a targeted advertisement being displayed. Traditionally, this has not been possible with regular commerce. Advertising which was a cost center in regular commerce became a profit center in internet commerce because now businesses spend money only when potential buyers visit their website and if they are spending more money on advertising, it means more potential buyers are visiting their website hopefully resulting in greater sales.

3. Issue of Trust and Reputation: Through complex algorithms, search engines display the most relevant and trustworthy information at the top of millions of search results retrieved. This gives users a certain amount of confidence that the businesses listed at the top of the search results are trustworthy and superior to the others. Furthermore, one can easily obtain reviews of businesses and compare competitors at online portals line www.epinions.com. Establishing trust across a broad audience has traditionally been much harder for businesses to achieve.

4. Personalization/Community Effect: Internet commerce offers great opportunities for businesses to deliver a personalized and targeted experience that is tailored to each customer. These may range from product recommendations to allowing customers to decide what they want to see and how they want the website to look. For example, amazon.com recommends products to people based on their purchase history. Furthermore, they also use the past buying behavior of the community as a whole to determine what products a person may be interested in once they buy a certain product.

5. New opportunities: Certain products became possible only after the internet revolution. Some examples would be information based products such as live stock market quotes and entertainment based ones such as music and video streaming. Another revolution around the corner is that of the open access / open standards mobile network which will unleash a whole new wave of innovation by allowing devices to communicate with one another.

Types of advertising models: The three main types of advertising models are:

1. CPC (Cost Per Click): Here the advertiser has to pay every time someone clicks on their advertisement. Example: Ads shown next to search results at google.com, CPC is typically used for search results ads.

2. CPM (Cost Per Thousand Impressions): Here the advertiser has to pay the publisher a certain amount for every 1000 times their ad is displayed. Example: Ads at the top of the New York Times homepage, CPM is typically used for banner ads.

3. CPA (Cost Per Acquisition/Action): In this model, the publisher displays an advertisement requesting users to fill out some information and then this information is sold to other parties as a lead. In such models, the advertiser pays every time a user

completes an action or for every new user they acquire. Example: Amazon affiliate program, CPA is typically used for rare sale items.

 Difference between the three advertising models

The Click Through Rate (CTR) is the percentage of ad impressions that lead to users clicking on the ad. For example, if the ad is viewed 100 times and is click on 3 times, the CTR = .03. Let us say that out of every 107 impressions (CPM), there are 105 clicks (CPC) which result in 103 actions (CPA). Paying $100 per action is the same as paying $1 per click and $10 per thousand impressions. Therefore, it is possible to tune each model to produce the same expected return. The difference lies in who assumes the risk in each model. In the CPM model, the risk is taken by the advertiser for none of the 1000 impressions result in a sale. In the CPA model the risk is absorbed by the publisher as he gets paid only when he is able to sell a lead.

The CPC model involves risk sharing wherein the advertiser has the risk that lots of people click but no one buys and the publisher has the risk that lots of people see the ad but none click the ad. Note:- The prices for CPM, CPC and CPA advertising models might make arbitrage possible allowing buying of say impressions in bulk and selling the actions that result from these impressions.

Differences between selling ads and selling other goods and services.

 Types of Advertisements

1. Contextual Advertisements: These advertisements are displayed based on a context. They are of three main types:

(a) Search Ads: These are ads that are displayed as and when the user searches for information and are based on the search query entered by the user. The Google Adwords program is an example of search advertising.

 (b) Content Based Ads: These ads are displayed based on the content of a web page. The Google Adsense program is an example of a content based advertising system.

 (c) Community/Social Ads: These ads are displayed based on either profile information or based on information such as past websites viewed. There is a question of privacy violation that arises in certain types of social ads.

2. Non-Contextual Advertisements: These are advertisements that are out-of-context. For example, banner advertisements on some sites are delivered in a non-contextual fashion. However, the gap between Contextual and Non-contextual ads is blurring with growth in advertising networks and intermediaries which are able to generate targeted ads based on a person's surfing history, cookies, information that can be easily ascertained such as the time of the day etc. These networks use algorithms to determine which advertisement to show to each customer.

 Keyword Pricing : How should the keywords be priced?

1. Posted Price: The publisher charges a fixed price for a keyword. It is difficult to use traditional "posted price" auctions for selling ads. An example of a posted price auction is: selling toothpaste. The seller asks for $2, and the buyer either buys it at $2, or does

not. But it is not easy to implement this type of pricing for advertisements. For instance, how much would Google charge for displaying an ad on the search keywords "green tipped shoe?" The reasons that posted pricing does not work for advertisements are:

 (a) Lack of information: The number of keywords is huge and you can also sell keyword combinations. For example, advertisers will be ready to pay more for 'dentist degree' than just 'dentist' for they stand to earn much more if someone enrolls in a dental program as opposed to visiting their dentist.

(b) Duplicates: In general, no two products are the same. However, a keyword is after all just a keyword and the posted price is well its price. However, when I search for 'metal', it might be that I am searching for the music genre or say steel or iron. There is difficulty in determining what price to charge. Also, different words might mean the same thing but a few among those synonyms might also mean other things. This adds further complexity to determining one fixed price.

 (c) The problem of long tail: Posted prices do not work with the long tail. It is easy for Google/Yahoo to price 'mortgage' but it is very hard to price 'blinds and draperies'. There are also seasonal variations and consumer trends. In general, as the long tail is monetized, more and more prices will be set in a distributed fashion.

2. Bidding: The keywords are priced based on a keyword auction where advertisers place bids per click and when their ad is clicked they are charged a certain amount. The amount they are charged is different in different auction types and this is discussed in the next lecture. A real world example of why it is hard to price advertisements is the case of Vioxx, a painkiller which was quite popular before it was found to have serious side effects from long-term, high-dosage use. The effect this news had on the price of advertising on keyword "Vioxx" was extreme and surprising. It caused the ad price to jump by a factor of 10. Why did this happen? It turns out that previous to this event, the advertisers who wanted to buy the keyword "Vioxx" were mainly drug companies trying to sell painkillers. After the event, there were people willing to pay much more for advertising: lawyers.

ELECTRONIC COMMERCE CATALOGS OR DIRECTORIES

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

1.Electronic White pages: Whitepages is a provider of contact information for people and businesses. It also develops mobile apps and business services that make use of its contact data. It has the largest database available of contact information on US and

Canada residents, which is used for services by USPS and MSN, among others. The company's revenue comes primarily from advertising.

2.Electronic Yellow pages: These are online versions of traditional printed business directories produced by telephone companies around the world. Typical functionalities of online yellow pages include me, business or location. Since Electronic Yellow Pages are not limited by space considerations, the alphabetical listings of businesses and search functionality of the business database by nathey often contain far more comprehensive business information such as vicinity maps, company profiles, product information, and more.

An advantage of Electronic Yellow Pages is that they can be updated in real time; therefore, listed businesses are not constrained by once-a-year publishing of the printed version which leads to greater accuracy of the listings since contact information may change at any time.

An ecommerce catalog is commonly defined as any online catalog that showcases the products or services of a company that operates primarily online, or in "e-commerce." This catalog represents part of a general shift in the way the world's consumer base does business. A large amount of what used to take place in physical stores now happens online. Just as physical or "brick and mortar" stores have migrated to the internet, many of their catalogs have moved from print to online formats.

There are many different types of ecommerce catalog setup options for businesses to choose from. One of the popular high-tech options is an "online shopping cart" - this kind of technology provides for full-featured online shopping, where software helps web users select products, compare prices, and order, all online. Other ecommerce catalog setups are less functional, but still display the full range of products. Some ecatalogs use phone support as a backup service for sales.

In developing an ecommerce catalog setup, companies have some specific issues to address. One of these is whether to migrate an existing print catalog. If the business wants to start over, they will need new graphics and text for the online version. These choices are critical to success, since the effect of the right words and pictures are just as important online as they are in a print medium.

the comprehensive electronic catalogue cross referencing and interchange data tools from Filterpedia, will help customers find and buy your products or services easier and faster through your on-line store. Our database management solutions will help you keep your product data and technical information up-to-date and easily accessible to your customers

Filterpedia provides customised eCommerce solutions as well as web development services based on your unique business requirements and goals. We create responsive modern website designs that work on smart phones and portable devices. Content Marketing through specialized Directories from Filterpedia are the perfect option for

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businesses looking to raise their profile, find new customers and increase market share. With today's Marketplace constantly evolving, consumers face more choices than ever before, it's imperative to have a strong presence across all search platforms

INFORMATION FILTERING

Information filtering describes a variety of processes involving the delivery of information to people who need it. This technology is needed as the rapid accumulation of information in electronic databases makes it imperative that consumers and organizations rely on computing methods to filter and disseminate information. Although this term is appearing quit often in articles describing applications such as electronic mail, multimedia distributed system, And electronic office documents, the distinction between filtering and related search processes such as retrieval, routing, categorization, and extraction is often to not clear.

An abundant amount of information is created and delivered over electronic media. Users risk becoming overwhelmed by the flow of information, and they lack adequate tools to help them manage the situation. Information filtering (IF) is one of the methods that is rapidly evolving to manage large information flows. The aim of IF is to expose users to only information that is relevant to them. Many IF systems have been developed in recent years for various application domains. Some examples of filtering applications are: filters for search results on the internet that are employed in the Internet software, personal e-mail filters based on personal profiles, listservers or newsgroups filters for groups or individuals, browser filters that block non-valuable information, filters designed to give children access them only to suitable pages, filters for e-commerce applications that address products and promotions to potential customers only, and many more. The different systems use various methods, concepts, and techniques from diverse research areas like: Information Retrieval, Artificial Intelligence, or Behavioral Science. Various systems cover different scope, have divergent functionality, and various platforms. There are many systems of widely varying philosophies, but all share the goal of automatically directing the most valuable information to users in accordance with their User Model, and of helping them use their limited reading time most optimally. This paper clarifies the difference between IF systems and related systems, such as information retrieval (IR) systems, or Extraction systems. The paper defines a framework to classify IF systems according to several parameters, and illustrates the approach with commercial and academic systems. The paper describes the underlying concepts of IF systems and the techniques that are used to implement them. It discusses methods and measurements that are used for evaluation of IF systems and limitations of the current systems. In the conclusion we present research issues in the Information Filtering research arena, such as user modeling, evaluation standardization and integration with digital libraries and Web repositories.

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CONSUMER-DATA INTERFACE: EMERGING TOOLS

Many of the electronic commerce applications require complex interfacing between humans and vast information resources. These applications must understand their environment and react to it. High-level user interfaces are needed to satisfy the many requirements and preferences of vast numbers of consumers in the online marketplace. Consumer data interfaces can be broadly classified into the following categories:

*HUMAN COMPUTER INTERFACE

A broad range of integrated technologies will allow humans and computers to interact effectively and naturally. Technologies will be developed for speech recognition and generation; graphical user interfaces will allow rapid browsing of large quantities of data; user sensitive interfaces will customize and present information for particular levels of understanding.

*HETEROGENEOUS DATABASE INTERFACES

- Methods to integrate and access multiple structure databases composed of multiformatted data will be developed. In a future I-way environment, a user could issue a query that is broadcast to appropriate databases and would receive a timely response translated into the context of the query. Examples of multiformated data include plain text, data that are multicolumn such as spreadsheets, and complex data types such as video.

*USER-CENTERED DESIGN TOOLS/SYSTEMS

- New models and methods that lead to interactive tools and software systems for architecture or such as design will be developed.

*VIRTUAL REALITY AND TELEPRESENTS

-Tools and methods for creating synthetic (virtual) environments to allow real-time, interactive human participation in the computing/communication loop will be addressed.

-The basic infrastructure necessary for consumer interface experimentation is available in terms of the WWW and the Mosaic browser. The latter is the basis of a "universal" interface that can be used to access diverse distributed information databases and resources.

UNIT   V

EDI

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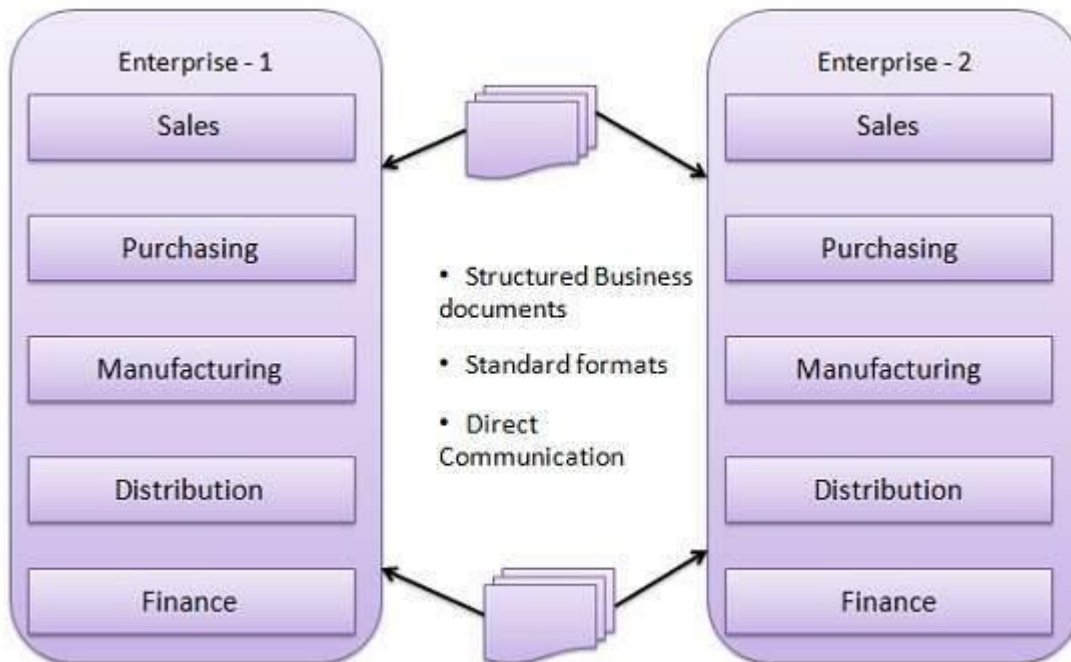
EDI Documents

Following are few important documents used in EDI −

Invoices

Purchase orders

Shipping Requests

Acknowledgement

Business Correspondence letters

Financial information letters

Steps in an EDI System

Following are the steps in an EDI System.

A program generates the file which contains the processed document.

The document is converted into an agreed standard format.

The file containing the document is send electronically on network.

The trading partner receives the file.

An acknowledgement document is generated and sent to the originating organization.

Advantages of an EDI System

Following are the advantages of an EDI System.

Reduction in data entry errors. − Chances of errors are much less being use of computer in data entry.

Shorter processing life cycle − As orders can be processed as soon as they are entered into the system. This reduced the processing time of the transfer documents.

Electronic form of data − It is quite easy to transfer or share data being in electronic format.

Reduction in paperwork − As lot of paper documents are replaced with electronic documents there is huge reduction in paperwork.

Cost Effective − As time is saved and orders are processed very effectively, EDI proves to be higly cost effective.

Standard Means of communication − EDI enforces standards on the content of data and its format which leads to clearer communication.

MIME

Standard for attaching non-text files to an internet mail message, such as animation, graphics, hypertext files, sound files, spreadsheets. MIME standard converts (encodes) non-text files into text that is normally unreadable and then, at the other end, reconverts (decodes) the files to their original form. A more secure version is called secure MIME (S/MIME).

MIME (Multi-Purpose Internet Mail Extensions) is an extension of the original Internet e-mail protocol that lets people use the protocol to exchange different kinds of data files on the Internet: audio, video, images, application programs, and other kinds, as well as the ASCII text handled in the original protocol, the Simple Mail Transport Protocol (SMTP). In 1991, Nathan Borenstein of Bellcore proposed to the IETF that SMTP be extended so that Internet (but mainly Web) clients and servers could recognize and handle other kinds of data than ASCII text. As a result, new file types were added to "mail" as a supported Internet Protocol file type.

STANDARDIZATION AND EDI

Connecting trading partners is not enough for EDI. All software, hardware and networks must work together so that the information flows from one source to another. Two major EDI standards exist: the American National Standards Institute (ANSI) X.12 comity and the United Nations EDI for administration, commerce and trade (EDIFACT) standards for international usage.

*ANSI X.12

-The ANSI chartered the accredited standards comity in 1979 to research and develops standards for business document. The X.12 comity develops standards to facilitate EDI relating top such business transaction as order placement and processing; shipping and receiving; invoicing, payment and cash application processing for products and services.

*EDIFACT

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-Developed by the United Nations, EDIFACT is a family of standards similar to ANSI X.12 EDIFACT was based on TRADECOMS, developed by the UK department of customs and excise with the assistants of SITPRO (the British simplification of trade procedures board).

EDI SOFTWARE IMPLEMENTATIONS

EDI software has four layers, business applications, internal format conversions, EDI translator, and EDI envelope for document messaging. These four layers package the information and send it over the value added network to the target business, which then reverse the process to obtain the original information.

*EDI BUSINESS APPLICATION LAYER

-The first layer step in the EDI process creates a document- in this case, an invoice- in a software application. This software application then sends the document to an EDI translator, which automatically reformats the invoice into the agreed- on EDI standard. If these two pieces of software are from different vendors, it is very important that the document preparation application seamlessly integrate with the EDI translation software.

If both the EDI translator and business application are on the same type of computer, the data will move faster and more easily from one to another.

*EDI TRANSLATOR LAYER

-Translation is an integral part of the overall EDI solution. Translators describe the relationship between the data elements in the business application and the EDI standards.

The translator ensures that the data are converted into a format that the trading partner can use. If EDI is done without translation, companies run a great risk of transmitting data that trading partners may not be able to read.

*EDI COMMUNICATION LAYER

-Direct-dial systems are by far the simplest and most common. The user has direct access to the partner's modem and communicates by using the modem. Limited VAN's are regional and international communication services similar to those used with E-Mail. Full third party services provide more than just communication between two or more parties.

EDI ENVELOPE FOR MESSAGE TRANSPORT.

Just as paper business documents are sent in envelopes and it's possible to mail many documents in a single envelope, EDI documents are exchanged using several envelopes. Each Transaction Set is placed in its individual envelope

A group of transaction sets – e.g. a group of purchase orders – is placed in a group envelope. (The group envelope is mandatory in ANSI and optional in EDIFACT.) All group envelopes being sent from one sender to one receiver are placed in an Interchange envelope

See the diagram below:
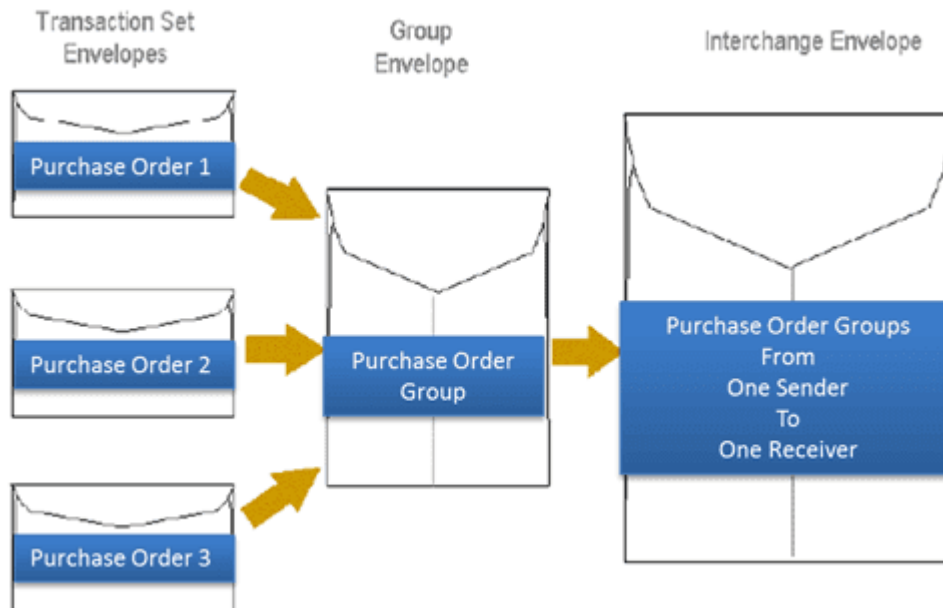
An envelope is formed by a pair of segments that define the beginning and end of the appropriate section. Using the EDIFACT standard as the example, the Transaction Set Envelope uses the UNH and UNT segments, the Group Envelope uses the UNG and UNE segments and the Interchange Envelope uses the UNA/UNB and UNZ segments. In each case, the "S" indicates the "start" of the envelope and the "E" indicates the "end" of the envelope. The diagram below illustrates the three levels of envelopes that would surround a single EDI purchase order.

VAN

A value-added network (VAN) is a private network provider (sometimes called a turnkey communications line) that is hired by a company to facilitate electronic data interchange (EDI) or provide other network services. Before the arrival of the World Wide Web, some companies hired value-added networks to move data from their company to other companies. With the arrival of the World Wide Web, many companies found it more cost-efficient to move their data over the Internet instead of paying the minimum monthly fees and per-character charges found in typical VAN contracts. In response, contemporary value-added network providers now focus on offering EDI translation, encryption, secure e-mail, management reporting, and other extra services for their customers.

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A van is a communication network that typically exchanges EDI messages among trading partners. Businesses can exchange data either by connecting to each other directly or by hooking into a VAN. Traditionally by acting as middle men between companies, VANs have allowed companies to automatically and securely exchange purchase orders, invoices, and payments. When a company sends an EDI transaction, it arrives at a message storehouse on the VAN to await pickup by the destination company. In this way VANs can safeguard the transaction network.

SOFTWARE AGENTS

Although the theory of agents stated that agent is given a very famous with the growth of internet.

Software agents are a piece of software which works for the user. However software agent is not just a program. An agent is a system situated within and a part of an environment that senses that environment and acts on it. The basic premise is the software agents are autonomous, background software processes that execute on behalf of the user:

*MANAGING THE INFORMATION OVERLOAD

        - Users are overwhelmed by the huge amount of information available and the effort-time and cost-required to find the specific information they need. Agent support is needed to sort and filter an incoming data stream automatically into a manageable amount of high-value information.

*DECISION SUPPORT

        - There is a need for increased support for tasks performed by "knowledge workers" (such as managers, technical professionals and marketing personnel), especially in the decision marketing area.

*REPETITIVE OFFICE ACTIVITY

        - There is a pressing need to automate tasks performed by administrative and clerical personal in functions such as sales or customer support to reduce labor cost and increase office productivity.

*MUNDANE PERSONAL ACTIVITY

        - In a fast paced society time strapped individuals need new way to minimize the time spend on routing personal task like booking airline tickets so that they can devote more time to other activities.

*SEARCH AND RETRIEVAL

        - Because it is not possible to manipulate directly a distributed database system in an electronic commerce setting with millions of data objects, users we have to relegate the task of searching and cost comparison to agents.

*DOMAIN EXPERTS

      -We need to model costly expertise and make it widely available. Examples of "expert" software agents could be models of real world agents such as translators, lawyers, diplomats, union negotiators, stockbrokers and even priest.

CHARACTERISTICS AND PROPERTIES OF AGENTS

Characteristics of Software agents:

Software agents are like guards and locomotives of most E-Commerce. The following are very few characteristics:

•Software agents can do their task without any outsource intervention.

•Social interaction with other software agents and human.

•Software agents are specific in their goals.

•Good software agent is the one which has the attitude to receive and adopt change The agent must be programmed in a powerful language so as to express the rules.

•Safety of the information must be promised by the agent.

•Effective usage of the existing resources.

•Agent must be a good sailor

•Agents must be very careful in handling unauthorized users. The same information must be accessed by the user to which they have right.

      The technical and operational characteristic of mobile and static software agents are quite different and diverse issues and concerns.

PROPERTIES OF MOBILE SOFTWARE AGENTS

     Mobile and distributed agents raise a number of issues, among them;

*PROGRAMMING

     -The agent must be programmed or instruct in some manner. The language (or other means) must be powerful enough to express the rules and concept required.

*SAFETY

     - Remote host must be assured that the agent can cause no damage, obtain no secrets, or commit other illegal activity.

*RESOURCE USAGE

     - As an owner you want to be sure your agent does not exceed its budget; as a host, you want to be sure agents do not consume disproportionate resources.

*NAVIGATION

     -An agent must be able to find the resources they need. They should coordinate with one another so as to traverse the ionosphere efficiently.

*PRIVACY

     - The agent's internal state and program should not be visible to others. Visiting agents should not discover more information than they are entitled to.

*COMMUNICATION

      -Agents must be able to communicate with users and one another, even if the network is not always connected.

GENERAL CHARACTERISTICS OF SOFTWARE AGENTS

*INDEPENDENTAGENCY

     -Agency independents are the ability to handle user defined tasks autonomous of the user and often without the user's guidance or presence. The user does not become directly involved in executing the task.

*AGENT LEARNING

     -Agency learning is the ability to mimic the user's steps when normally performing a task. For example learning agents would learn the user's habits and preferences overtime and either respond to request or act on the users behalf based on their experience.

*AGENT COOPERATION

      -Cooperative behavior is the ability to engage in complex patterns of to-way interaction with users and other agents.

*AGENT REASONING CAPABILITY

      -This is the ability to operate in a decision making capacity in complex, changing conditions. The following three approaches are used to build agent with reasoning capabilities:

(1)The rule based approach employs user-scripted controls for information handling.

(2)The knowledge based approach uses an expert to compile a large amount of information, and then passes that information to an agent to reduce proper behavior.

(3)The learning approach enables agents to learn as they are used, acquiring statistical history and new knowledge that will guide their future behavior.

AGENT INTERFACE

     The notion of a software agent that can effectively help human perform daily task is even more powerful web users think of the agents as some sort of humanoids.

THE TECHNOLOGY BEHIND SOFTWARE AGENT

      Current technological issue in this area will centre on answering question pertaining to infrastructure and information;

*What are the components of a software agent?

*What are the components of the computing environment that supports software agents?

*How is software agents released or launched into an information medium?

*How might a user stop or control a released software agent?

COMPONENTS OF A SOFTWARE AGENT

     A software agent is composed of the embedded knowledge that drives it actions.

*OWNER –parent process name, or master agent name.

*AUTHOR-development owner, service or master agent name.

*LIFETIME-time to leave (TTL) some agents might exist only for a short duration and die after some task is completed.

*ACCOUNT-billing information, electronic address.

*GOAL-goal statements representing the measures for success.

*SUBJECT DISCRIPTION-topic name, topic description attributes.

*BACKGROUND-supporting information.

COMPONENTS OF THE AGENT COMPUTING ENVIROMENT

An agent will rely on supporting facilities that help in assist the user in researching a stated goal.

LAUCHING SOFTWARE AGENTS

Launching an agent to the network will ultimately be a very simple task. Agents will operate as though they are "live" entities. Intelligent agents will be pointed in the general direction of the resources needed and will precede the query and test the available resources.

Synchronous communication- oriented Remote procedure Call(RPC)

Asynchronous message- oriented agents

Intermediaries or database middleware

REMOTE OR AGENT PROGRAMMING

Remote programming changes the way network communications operate from the current distributed computing model that uses RPCs. In most RPC-based client-server systems, retrieving information from an on-line server requires a direct connection between client and server.

MANAGING AND CONTROLLING REMOTE SOFTWARE AGENTS

Once agents, small pieces of code (objects) programmed to handle background or remote task, are launched, they must be controlled. Agents could become harmful in some way, since no program can be tested for all possible situations. This raises the issue of control.

Agents responsible for purchasing and selling will have to be controlled particularly closely. Other controlled issues emerge when scarce resources have to be allocated among many competing agents. Control is also necessary from a user perspective and money limits the action of an agent. When an agent is created the user gives it a certain amount of money, teleclicks to do its job to prevent it from spending too much time or resources in its search for a solution.

TELESCRIPT AGENT LANGUAGE

Telescript is primarily oriented towards creating a common communication language for wireless communication.

In telescript, an agent is a program the user creates and sends across a network. An agent carries out transactions on a telescript-aware network in places. Places or location on the network-an electronic shopping centre or a directly of services-that correspond to a telescript engine. Places can be nested, or contain other places inside themselves.

SAFE-TCL

Safe-Tcl is an another agent-oriented language that is based on Tcl (Tool command language, pronounced "tickle"). Tcl, which is distributed has public domain, has become very popular in the internet community and is a scripting language developed by John Ousterhout at the University of California at Berkeley (TCL 90). In many people used tcl to develop prototype software for UNIX and windows applications because it offers a flexible way to bind small C programs (the tools) into a large application.

It has as its antecedent a project called ATOMICMAIL headed by Nathaniel BORENSTEIN at Bellcore (safe 94).This feature lisp-like language that provided secured and portable active-messaging capabilities. An active message contains a program, which the recipient can execute on receipt. Two important developments came out of this project: Metamail and MIME. The structure of safe Tcl is simple. The original Tcl is distributed as libraries that build a small interpreter for the language. It links one interpreter into the uses code and it executes the code for controlling the basic tools built into the system.

There are limitations to this approach. The scripts can run locally, but they cannot autonomously roam from host to host like the agents in telescript. There is no way to save all the local data and state and there are no simple and clean ways to add these capabilities.

APPLETS, BROWSERS, AND SOFTWARE AGENTS

Client applications such as web browsers allow users to manipulate information spread across the internet as a whole. Web browsers integrate the function of fetching the remote information, figuring out what format it is and displaying it. These browsers contain detailed, hard-wired knowledge about the many different datatytpes, protocols and behaviors necessary to navigate the web.

The next generation of browsers currently under development wills extent the functionality of client browsers significantly using the notion of applets (GOS95). Applets are external applications (think of them as software agent) that expand the capabilities of a core browser to invoke specialized applications that range from interactive shopping applications, education materials, and games.

SOFTWARE AGENTS IN ACTION

The software agents being designed and developed cross a number of application boundaries. They are designed to filter and gather information from commercial data services and public domains like the internet's and the to automic message-based work flows. Because the range is broad, it helps to separate software agents into three main categories: Event monitors, Work-flow assistants, the internet data gathering and retrieval agents. The work flow assistants include software agents in the areas of smart messaging, message filtering, work flow automation, financial services, and customer services help desks.

SOFTWARE ADVISSERS: COUSTOMER SERVICE HELP DESK

Software advices are experts in a particular domain. An example of software agents is customer service advices. With an increasing emphasis on quality customer's service as an important differentiator of services, firms are turning towards technology to automate help desk function-better data collection, retrieval, and reporting.

The most powerful feature of any help desk package is its capability to bring closure. Traditional approaches have increasingly been able to cross reference material about known problems and solutions and to intelligently search for answers, but problem resolutions is where expert systems shine.

EVENT MONITORS: SYSTEM AND NETWORK MANAGEMENT

Agents, however, have big potential when it comes to providing a more cost effective means of running distributed applications and managing networks of far-flung equipment.

WORK-FLOW ASSISTANCE AND SMART MESSAGING

Assistance agents can be more ambitious than advisory agents because they often act without direct feedback from users. All though this feature allows them to be much more powerful, it also raises host of technical issues that have yet to be resolved. The concern you might have over privacy and stifled creativity with an agent that is only offering advice become much more acute when your agent is actually doing work for you.

SOFTWARE AGENTS AND RESOURCE DISCOVERY

The problem of discovery within online networks is very complex and necessitates that the use of software agents. While it is impossible to get a completely accurate picture of the number of documents available via the WWW, it is clear that it contains millions of documents. It is simply no longer practical foe users to wander around online looking for information.

SOFTWARE AGENTS FOR DICOVERY ENTILES THREE CHALLENGES:

(1)The scale of problem

-Information discovery is correctly too large a task. There are thousands of servers, with more coming online every day. Add to this the growing number of users on the web, and the challenges quickly become unmanageable.

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(2)Need for cooperative brokerages

-Creating simple brokerages does not solve the information discovery problem, but rather exacerbates it, making that one site a bottleneck for all users.

(3)Need for resource sharing

-It is undesirable for multiple agents to examine the same sites. Exploring the WWW is complex enough without having a number of noncooperation and redundant search as. Not only does it cause unnecessary load on the servers, but it fails to provide a reasonable service to the user. This is, in fact, almost what we have now.