Study Material for B.COM

E.Business

(18UCON2)

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Unit -I

Introduction to E-Business

E-business or Online business means business transactions that take place online with the help of the internet. The term e-business came into existence in the year 1996. E-business is an abbreviation for electronic business. So the buyer and the seller don't meet personally.

Features ofE.Business

Some of the features of e.business are as follows:

- There are no geographical boundaries
- Much cheaper than traditional business
- There are flexible business hours
- marketing strategies cost less
- Online business receives subsidies from the government
- There are a few security and integrity issues
- There is no personal touch
- Buyer and seller don't meet
- Delivery of products takes time
- There is a transaction risk
- Anyone can buy anything from anywhere at anytime

Generally speaking, when we think of e-commerce, we think of an online commercial transaction between a supplier and a client. However, and although this idea is right, we can be more specific and actually divide e-commerce into six major types, all with different characteristics.

There are 6 basic Categories /types of Ecommerce:

1. Business-to-Business (B2B)
2. Business-to-Consumer (B2C)

3. Consumer-to-Consumer (C2C)
4. Consumer-to-Business (C2B).
5. Business-to-Administration (B2A)
6. Consumer-to-Administration (C2A)

1. Business-to-Business (B2B)

Business-to-Business (B2B) e-commerce encompasses all electronic transactions of goods or services conducted between companies. Producers and traditional commerce wholesalers typically operate with this type of electronic commerce.

2. Business-to-Consumer (B2C)

The Business-to-Consumer type of e-commerce is distinguished by the establishment of electronic business relationships between businesses and final consumers. It corresponds to the retail section of e-commerce, where traditional retail trade normally operates.

3. Consumer-to-Consumer (C2C)

Consumer-to-Consumer (C2C) type e-commerce encompasses all electronic transactions of goods or services conducted between consumers. Generally, these transactions are conducted through a third party, which provides the online platform where the transactions are actually carried out.

4. **Consumer-to-Business (C2B)**

In C2B there is a complete reversal of the traditional sense of exchanging goods. This type of e-commerce is very common in crowdsourcing based projects. A large number of individuals make their services or products available for purchase for companies seeking precisely these types of services or products.

Architectural Framework for Electronic Commerce

The software framework necessary for building electronic commerce applications is little understood in existing literature. In general a framework is intended to define and create tools that integrate the information found in today's closed systems and allow the development of e-commerce applications. It is important to understand that the aim of the architectural frame-work

itself is not to build new database management systems, data repository, computer languages, software agent based transaction monitors, or communication protocols. Rather, the architecture should focus on synthesizing the diverse resources already in place in corporations to facilitate the integration of data and software for better applications.

The electronic commerce application architecture consists of six layers of functionality, or services: (1) applications; (2) brokerage services, data or transaction management; (3) interface, and; support layers" (4) secure messaging, security and electronic document interchange; (5) middle ware and structured document interchange; and (6) network infrastructure and basic communications services

Advantages of E-Commerce

There's a reason vendor like Amazon choose to do business online. It gives them some unique advantages over their store-bound competitors. The biggest advantages are the low costs, the flexibility and speed, and the high levels of data.

Low Costs

Opening a store is expensive. We have to pay rent, furnish the space, get the equipment need, and hire employees to work in it. The total cost will depend on how much space a businessman need and where he wants to open the store, but it will run at least a very few amount to start and then rent and ongoing expenses thereafter.

Flexibility and Speed

Opening a brick and mortar store takes time. A businessman has to find a space, get through the commercial leasing process, and get the store set up. That may involve construction time, or at least the time to decorate and prepare his space.

Data

In 2016, data is king. All of the websites we use every day collect tons of data about us to learn how we surf the web, what sorts of sites we visit, and what kinds of things we purchase. If a person running an e-commerce site, he'll be able to collect data on how long his customers stay

on his site, what they look at, and how they go about making purchases. That gives him direct insight into what's making them click "Buy" or what's stopping them.

Disadvantages of E-Commerce

Of course, e-commerce isn't perfect. It's all online, which means that customers can't touch or feel or try on your products before buying. Online transactions often feel less personal, which can make it harder to make a genuine connection with your customers to keep them coming back for more. E-commerce is limited by the lack of a brick-and-mortar store, the new challenges of mobile shopping, and the difficulties of marketing online. It's also a challenge to manage the crossover from e-commerce to physical products.

What are the Objectives of Ecommerce?

Ecommerce business drives profitable growth with reduction is cost-to-customer, developing customer-reach, and providing a unique customer experience. It has become more than essential for B2B as well as other businesses to make the right use of ecommerce. Now, ecommerce is evolving or better say evolved into digital commerce that implies to the entire business journey from buying to delivery with an online experience. Below are the few objectives of ecommerce:

1. Reduce Management Costs

Businesses aim at reducing the costs incurred for the betterment of their revenue. Automating the ecommerce business can help in reducing the management cost significantly. Moreover, the right use of digital marketing can help in reducing the cost spent on driving customers to such an extent that businesses can bring customers for free of cost.

2. Developing business relations

With ecommerce as the primary use, business development can be easily achieved. The direct communication between a company and the customer, the business relationship can be boosted. Eventually, the ecommerce market shall be expanded.

3. Providing a unique customer experience

Uncountable ecommerce businesses are functioning out there in the market. When a customer searches for a certain product (for instance, shampoo), they will probably click on the

first three links that are shown on the Google Search Engine Results Page. All the rest links are either avoided, never seen, or are visited by a few. This itself shows the competition in the ecommerce market. One of the best ways to stand out from the crowd is by providing a unique customer experience. This includes giving a personalized experience to each customer or visitor of your online store, website, or mobile app. Some other pointers to consider are round the clock customer service, immediate responses to the queries rose, engaging with the customers, and so on.

4. Increasing the number of loyal customers

Customers are the core of all business strategies. Therefore, ensuring the great customer experience is of prime importance for the growth of the business. You need to meet your customers where they spend their time. More than 60% of consumers look for purchasing goods and services online. If you meet your customers where they are already active, the chances of them, interacting with your business increases two folds. You can increase the number of loyal customers by giving the best experience to your already existing customers as well as bring in newer customers.

5. Boosting the efficiency of services

With the continually evolving technology, you need to enhance the efficiency of your services. By choosing an online ecommerce platform to create an online store, you can efficiently reduce the cost of managing and selling online. Another way is to provide your customers with automated services such as status update, invoice creating, chat support, etc.

6. Developing relevant target

Developing relevant traffic for an ecommerce business is a common objective. Whether an ecommerce website or an online store, building traffic is one of the most important objectives. Here comes the need for collecting customer data. Collecting customer data include demographics such as age, location, and gender, customer interests, browsing history, browser history, and so on. By saving these data, you can aim in targeting the relevant market.

7. Making responsive ecommerce website

With the increasing use of smartphones for shopping online, it has become more than mandatory for ecommerce businesses to go mobile.

8. Increasing sales

The objective of increasing sales will always remain continuous and constant for an ecommerce business. In order to thrive in the ecommerce industry, you need to boost your sales, constantly. All other objectives are zeroed down to make this objective happen.

Unit -- II

Email names and address

Definition

An **email address** identifies an email box to which messages are delivered. While early messaging systems used a variety of formats for addressing, today, email addresses follow a set of specific rules originally standardized by the Internet Engineering Task Force (IETF) in the 1980s

An email address, such as *john.smith@example.com*, is made up from a local-part, the symbol @, and a domain name. Although the standard requires the local part to be case-sensitive,[1] it also urges that receiving hosts deliver messages in a case-independent manner,[2] e.g., that the mail system in the domain *example.com* treat *John.Smith* as equivalent to *john.smith*; some mail systems even treat them as equivalent to *johnsmith*.[3] Mail systems often limit the users' choice of name to a subset of the technically permitted characters.

An email address also may have an associated display name for the recipient, which precedes the

Address specification now surrounded by angled brackets, for example:John Smith <john.smith@example.org>

Earlier forms of email addresses for other networks than the Internet included other notsuch as that required by X.400, and the UUCP *bang path* notation, in which the address was given in the form of a sequence of computers through which the message should be relayed. This was widely used for several years, but was superseded by the Internet standards promulgated by the Internet Engineering Task Force (IETF).

Valid email addresses

Examples

simple@example.com

very.common@example.com

disposable.style.email.with+symbol@example.com

Invalid email addresses

`Abc.example.com` (no @ character)

`A@b@c@example.com` (only one @ is allowed outside quotation marks)

Direct Marketing

What is Direct Marketing?

Direct marketing is a promotional method that involves presenting information about your company, product, or service to your target customer without the use of an advertising middleman. It is a targeted form of marketing that presents information of potential interest to a consumer that has been determined to be a likely buyer.

Direct marketing is broadly defined as any direct communication to a consumer or business recipient that is designed to generate a response in the form of a direct order, a request for further information or a visit to a store or other place of business for the purchase of a specific product or service).Theemphasis ison direct marketing communication. Scope and Importance of Direct Marketing

It is a marketing system based on individual customer records held on a database. These records are the basis for marketing analysis, planning, implementation of programmes, and control of this activity.

Direct Marketing as a strategy:

A strategy used to create a personal and intermediary free dialogue with customers. This should be a measurable activity and it is very often media based, with a view to creating and sustaining a mutually rewarding relationship.

Forms of Direct Marketing

Common forms of direct marketing include:

- Brochures
- Catalogs
- Fliers
- Newsletters
- Post cards
- Coupons
- Emails
- Targeted online display ads
- Phone calls
- Text messages

The Goal

While some marketing techniques aim to increase awareness or to educate markets about a company's products or services, direct marketing's sole goal is to persuade the recipient to take action. While getting a sale is the ultimate goal, some customers will not be ready to buy on-the-spot. But they might 1. Visit a website2. Call for more information3. Return a postcard requesting a quote, 4. Enter their name and email addressand 5. Make a purchase

Reasons for its Successfulness

Unlike mass advertising, which is presented to everyone, direct marketing is presented only to people who are suspected to have an interest or need in your company's product, based on information gathered about them.

For example, graduates of Princeton University might be sent an email announcing a new cashmere sweater now available for sale with the school's logo on it. Only students, graduates, and their parents are likely to be interested in owning such a piece of clothing, so by limiting who receives the announcement, the manufacturer saves money on distribution costs and increases the odds of reaching people who might make a purchase.

Other reasons direct marketing is more successful are:

- You can make the message personal, making the recipient feel it is meant just for them
- It is more cost-effective to market to buyers who have been identified as likely to buy
- For that reason it also has a higher return on investment, since the likelihood of making a sale to a targeted customer list is higher to begin with.
- It is measurable. Direct marketing uses a number of built-in ways to track the success of each campaign, allowing you to improve with each mail or email cycle.

Direct selling

Direct selling consists of two main business models: single-level marketing, in which a direct seller makes money by buying products from a parent organization and selling them directly to customers, and multi-level marketing (also known as *network marketing* or *person-to-person marketing*), in which the direct seller may earn money from both direct sales to customers and by sponsoring new direct sellers and potentially earning a commission from their efforts.

According to the FTC: "Direct selling is a blanket term that encompasses a variety of business forms premised on person-to-person selling in locations other than a retail establishment, such as social media platforms or the home of the salesperson or prospective customer."

Modern direct selling includes sales made through the party plan, one-on-one demonstrations, and other personal contact arrangements as well as internet sales. Some sources have defined direct selling as: "The direct personal presentation, demonstration, and sale of products and services to consumers, usually in their homes or at their jobs."

Direct selling is an effective way to build long-lasting customer relationships and grow a flexible, low-cost business. Independent sales people use direct selling to sell their products and services directly to customers in meeting places such as homes, offices and cafes, instead of in retail outlets.

It allows you to avoid expensive overheads, reduce advertising costs and run your businesses flexibly. Customers also benefit from the convenience and personal attention they receive from direct salespeople. However, there are disadvantages to direct selling.

Direct salespeople can find it hard to reach new customers and can spend a lot of time on customer interactions to make sales. Without the use of a retail outlet, you also need to carefully consider storage and delivery logistics.

The reputation of direct selling has been harmed in the past by illegal pyramid schemes, so direct selling businesses need to market themselves purposefully and professionally, and be clearly aware of legal selling practices and obligations.

Types of Direct Selling

Direct selling methods include:

- **person-to-person sales** — arranging individual appointments with customers to make presentations, demonstrate new products or arrange product tests or fittings
- **door-to-door sales** — approaching homes and businesses by appointment or unannounced to leave catalogues and offer products or product demonstrations
- **in-home presentations** — arranging parties and at-home gatherings to present products (often called 'party plan')
- **online shopping** — using websites and email lists to build customer networks and offer online ordering facilities
- **venue sales** — setting up booths or kiosks at events to generate new leads and promote and sell products
- **network marketing** — recruiting other sellers into a network to 'duplicate' your product sales role, earning a percentage of their sales revenue and expanding your product reach.

Tips for direct selling

- **Focus on growing relationships first**, not sales. Encouraging your customers to give you their time and attention is your first goal. Create a rapport and identify their needs, then you can match your products to those needs. Follow-up on new prospects quickly to build new relationships.
- **Know your products** and have confidence in their ability to meet your customers' needs. Salespeople who are passionate about their products sell more. Support your passion with a thorough knowledge of your products.
- **Keep thorough customer records**. A detailed customer database helps build and track your networks, and is an invaluable source of information that can influence sales. Use your database to communicate periodically with your customers and distribute marketing material such as e-newsletters and event or product updates.
- **Organise your sales environment**. Arrive early at your party or event and carefully plan your product display, presentation space and seating position. Choose a layout that will help your customers maintain eye contact with you rather than each other. Consider ways to remove distractions in the room. For example, ask your host or hostess to close doors that are letting in noise or external activity.
- **Build the networks**. Build the network marketing strategies are central to growing your business. Build strong, mutually beneficial relationships with your direct marketing colleagues. Catch up with, or communicate with, your colleagues regularly to share your selling tips and keep them motivated.
- **Polish the salesskills**. Enhance the conversation skills, listening skills and well-developed approach to communication will help you build lasting customer relationships and grow a rewarding business.

Value Chain

What is a Value Chain?

A value chain is a business model that describes the full range of activities needed to create a product or service. For companies that produce goods, a value chain comprises the steps

that involve bringing a product from conception to distribution, and everything in between—such as procuring raw materials, manufacturing functions, and marketing activities.

Primary Activities

Primary activities consist of five components, and all are essential for adding value and creating competitive advantage:

1. **Inbound logistics** include functions like receiving, warehousing, and managing inventory.
2. **Operations** include procedures for converting raw materials into a finished product.
3. **Outbound logistics** include activities to distribute a final product to a consumer.
4. **Marketing and sales** include strategies to enhance visibility and target appropriate customers—such as advertising, promotion, and pricing.
5. **Service** includes programs to maintain products and enhance the consumer experience—like customer service, maintenance, repair, refund, and exchange.

Support Activities

The role of support activities is to help make the primary activities more efficient. When you increase the efficiency of any of the four support activities, it benefits at least one of the five primary activities. These support activities are generally denoted as overhead costs on a company's income statement:

1. **Procurement** concerns how a company obtains raw materials.
2. **Technological development** is used at a firm's research and development (R&D) stage—like designing and developing manufacturing techniques and automating processes.
3. **Human resources (HR) management** involves hiring and retaining employees who will fulfill the firm's business strategy and help design, market, and sell the product.
4. **Infrastructure** includes company systems and the composition of its management team—such as planning, accounting, finance, and quality control.

Supply Chain Integration

What is Supply Chain Integration?

Supply chain integration is a close alignment and coordination within a supply chain, often with the use of shared management information systems. A supply chain is made up of all parties involved in fulfilling a purchase, including raw materials, manufacturing the product, transporting completed items and supporting services.

Supply chain refers to all inputs required to produce a product and fulfill a purchase. For example, a company that assembles computers would need to purchase components such as circuit boards. The circuit board company would need to purchase materials to produce them, including wire and silicon. All of these materials and components form part of the company's supply chain of materials needed to produce the end result of a working computer. Once the computer is built, a trucking company may take it to a wholesaler warehouse, and then it may be delivered to a retail store for sale or shipped directly to an end user. Every step - from sourcing of raw materials to final delivery to the customer - is considered part of the supply chain of the computer.

How Do Companies Integrate Supply Chains?

There are several different levels of supply chain integration. Generally, the first step in integration would be to select specific vendors to provide specific inputs, and develop an agreement for them to provide a set amount of inputs during the year at a set cost. This ensures the company has the materials it needs to produce its expected output of computers during the year. Our computer company might sign a contract with a large supplier of circuit boards, for example, that requires it to deliver a specific quantity at specific times during the year and sets a price that will be in effect during the contract.

A higher level would be to integrate the companies more closely. The circuit board provider might build a plant close to our assembly plant, and we might share production software so the circuit board company can see how many boards we'll need in the upcoming week and can build them as we need them to meet sales demand.

An even higher level is called **vertical integration**, which is when the supply chain of a company is actually owned by the company. For example, our computer company could purchase a circuit board company in order to ensure a dedicated supply of components.

The Biggest Challenges in Supply Chains

Before bothering with the specifics of integration, it's important to understand what problems plague supply chains in the first place:

Order Changes and Cancellations: This happens at the end of the supply chain, and sends reverberations throughout. The retailer is stuck with excess product, the wholesaler deals with fewer orders and backing up inventory, and every other supplier feels the waves. Plus, consumer whim dictates changes and cancellations, meaning there's little way to predict it, and every case could have different reasoning.

- **Workers Unavailable:** Companies provide quotes and production orders based on expected capacity, and when workers are ill or otherwise unexpectedly absent, that can dramatically affect a supplier's capability. This scenario is especially true in the age of automation, where fewer workers are required but each is responsible for overseeing the smooth production of many more units.
- **Production Facility Failure:** Like with workers, unexpected mechanical or software problems with manufacturing plants can devastate a supply chain, especially if it is operating on just-in-time, Lean manufacturing methodologies.
- **Late Delivery of Materials:** This logistical problem can stem from a number of transportation issues, from as mundane as a traffic collision to as severe as genuine theft and piracy, depending on which regions the supply chain serves.
- **Suppliers' Conflicting Obligations:** Independent suppliers all have one honest goal - make as much money as possible by taking on as many orders as possible. In non-integrated chains, this means they might have some tolerance for overlap between different customers' orders. Should one customer decide to increase production, another suddenly might be out of a production facility because the supplier overcommitted.
- **Adversarial Relationships:** Whether for the conflicting obligations cited above, or for simple reasons of maintaining secrecy and negotiation advantages, customers and

suppliers may have a relationship that's more foe than friend. They don't share risks or benefits and lose out on potential gains from working more closely together.

- **Transactional Relationships:** Even when not adversarial, supplier and customer relationships in non-integrated chains could be "just business," emphasizing direct delivery and cost with no added value. Every deal is a new negotiation, focused on the bottom line, and terribly short-sighted.
- **Limited Communications:** Non-integrated supply chains may only talk to firms just one or two links away from them, whether up or down the chain. If they have a buying relationship with the link before them, focused on minimizing cost, and a selling relationship with the next link, focused on maximizing profit, they can't learn about bigger impending problems or greater opportunities further up or down the chain.

How to Create a Supply Chain Strategy

When deciding how to position your organization in the market, knowing which of the above challenges you face is a good first step. From there, use this framework to make some honest choices on what supply chain strategy you need to make to be competitive.

1. **Define the strategy and the vision of the role that supply chain management plays within the organization.** Is it a practice for reducing waste and speeding up delivery, for tightening relationships with partners, or for market dominance and increasing barriers to entry for new competitors? You should refer to every part of your strategy and methods for growth in this vision.
2. **Decide what your firm, and ultimately your supply chain, will compete on: low cost or differentiation.** Low cost supply chains require cutting out middlemen, limiting transportation needs, and reducing specialization to save dollars at every stage. Differentiation may require special relationships with manufacturers who can respond to specific customer requests way down the supply chain promptly.
3. **Divide every supply chain activity into "insource" or "outsource."** Determine what your firm does better than anyone else, and double down on all activities that fall under this facet. If your company creates value in something that others can't, insource it. Then,

determine if you can reasonably invest in new core competencies, or if it will never be profitable or efficient, and partner up with outsourced suppliers accordingly.

4. **Assess your supply chain architecture.** How is the chain "designed," what are your logistics realities, how are information flows set up, and what is the timeline for cash flows? Without deliberate management, these different supply chain attributes may have formed a tangled web over time as your organization grew, born out of convenience or necessity.

Developing a multi-faceted approach to supply chain management is a great risk to existing supply chain partners. Although beneficial in the long-term, short-term effects may be negative, such as losing B2B relationships, having trouble in meeting the demands of customers, and bringing additional costs to the company. The harbinger of these consequences is unplanned downtime and disruption.

However, the evolution of supply chain management can overcome these obstacles by establishing a seamless transition, utilizing automated system testing and other features indicative of the modern supply chain. The modern world of supply chain management is built on reducing risk wherever possible and using these advanced capabilities, reports Inbound Logistics:

- Increasing transparency into all operations through the internet and mobile devices.
- Omnichannel retailing, keeping customers involved in management decisions and reducing downtime by using all the resources of the company to fill more orders.
- Enhanced reverse logistics, increasing customer service and giving warehouse managers a means of handling returns regardless of their origin.
- Automated inventory systems, ensuring stock levels are appropriate, and self-optimizing slotting systems that can tell warehouse managers what needs to be moved, as well as when and where

Financial services

Financial services are the economic services provided by the finance industry, which encompasses a broad range of businesses that manage money, including credit

unions, banks, credit-card companies, insurance companies, accountancy companies, consumer-finance companies, stock brokerages, investment funds, individual managers and some government-sponsored enterprises. Financial services companies are present in all economically developed geographic locations and tend to cluster in local, national, regional and international financial centers such as London, New York City, and Tokyo.

A big part of the benefits of e-commerce for retailers will come from the online sales and purchases of e-commerce financial services. The fintech applications for e-commerce will allow retailers to capture a big share of fintech products sales.

Impact of E-Commerce on Financial Services

It has been transformational in how e-commerce impacts banking. Trips to a physical bank branch are no longer necessary by utilizing the vast array of online services offered by major banks. This includes the basics of direct deposits of paychecks, online bill paying, and many other convenient banking services.Financial service companies that compete with banks can offer many things, besides basic banking, to their customers online.

Increased Fintech Product Offerings

One powerful application of e-commerce is to provide financial services that extend the things offered by banks. Fintech companies may offer regular banking services plus other services, such as trading in foreign currency exchange (Forex), investments, and insurance. These offers are possible to make in ways that are cost-effective and highly-competitive.

These are just the beginnings of a major transformation caused by the impact of e-commerce on banking and finance. Here are some other ways that fintech and e-commerce impact each other:

1. Digital Currency and Cryptocurrency

Physical currency is being retired in many nations to be replaced by digital versions of currency. This may shift to cryptocurrency eventually for its added security protections and usefulness.

2. Services for the Unbanked

In developing countries, billions of people do not have a bank account. Moreover, a significant portion of people in developed countries, such as 25% in the U.S. as reported by CNBC, are unbanked or underbanked as well. By creating e-commerce/fintech hybrid services, online retailers may sell products and offer financial services to their customers, thereby substituting for a bank.

3. Permanent Digital Archive Records

Blockchain technology, which derives from cryptocurrency applications, is now used to make permanent encrypted records of financial transactions that are public. There will be no need for individuals to keep any records/receipts when they can access these permanent records online. The use of blockchain technology can reduce fraud.

4. Artificial Intelligence and Big Data Mining

Artificial intelligence (AI) is already being applied to analyze Big Data and look for patterns. Online retailers can cross-reference purchasing activity with other Big Data metrics to predict behaviors. Behavioral analysis of customer patterns improves the impact of marketing. This allows an online retailer to present products and/or service offerings at the most appropriate moment when they have the greatest relevance for a person. Moreover, fraud can also be reduced by AI mining of Big Data to gain insights about patterns of criminal behavior to help prevent it.

5. Peer-to-Peer Transactions

Peer-to-peer systems have already evolved that disintermediate the traditional fintech structures. Examples are peer-to-peer lending, crowdfunding, and for-sale-by-owner (FSBO) real estate transactions. When a direct, person-to-person, connection is easily made there is no need for intermediaries.

6. Mobility

Most online purchasers regularly use a smartphone for e-commerce. Small business owners can use a smartphone for bank card purchases with the help of a simple attachment that is used to

read a bank card. The system sends the transaction over the mobile network for authorization. This service is very convenient, the transaction fees are highly-competitive, and there are no monthly fees. It is easy to sign up for this type of service for those with a merchant account on PayPal and other financial systems.

7. Personalization

The financial service sector and fintech products already are merging with e-commerce. The traditional physical boundaries of brick and mortar retail stores have disappeared online. Online, it is just as easy to buy insurance from a major retail store as it is from an insurance agency. Using AI for customer support replaces the need for a large human staff of specialists

The improvement in digital processing of complex transactions using blockchain technology means that many more items will be sold by online retailers, including things like homes and financial products.

Information Systems or Information Services (IS)

Information systems include the following interactions:

- Between technology and algorithmic processes within the boundaries of an enterprise
- Organizational interaction with technology and vice versa
- Between society and technology

The history of information systems predates the emergence of modern computer science in the 20th century. A number of legacy information systems still exist and are continually updated to ensure data security and longevity, promote ethnographic approaches and improve the social effectiveness and efficiency of information processing.

Types of information systems include:

Transaction Process Systems (TPS)

- Office and office automation

- Enterprise Collaboration Systems (ECS)
- Enterprise Resource Planning (ERP)
- Expert Systems
- Global Information Systems (GIS)
- Management Information Systems (MIS)
- Decision Support Systems (DSS)
- Data Warehouses (DW)
- Executive Support Systems (ESS)

Many of these systems are designed to accomplish tasks that are more advanced than most human brain capabilities, such as storing large quantities of data and executing complex calculations and simultaneous processes.

Emerging information systems include those used for geographic areas and disasters, which are broadly classified as spatial information systems.The IS development approach varies according to requirements. For example, an organization may use an engineering approach, in which a systematic process utilizes sequentialdevelopment stages.

- Recognizing issues, problems or required specifications
- Collecting information
- Determining new system specifications
- Designing the system
- Constructing the system
- Implementing the system
- Evaluating and maintaining the system

Like records and information management, ISs have evolved for over 30 years. Foundations were set by the manual organization of data and information in physical formats, such as paper, microfilm, photographs, negatives, and audio/video recordings.However, IS research continues to be the subject of scholarly debate. The Association for Information Systems (AIS) is an international organization of IS researchers that has published several relevant journals

Unit -III

Internet and EDI

What is Internet?

According to the definition provided by Oxford dictionary, the Internet is an arrangement of connected computers, which lets the computer users all over the globe exchange data. At the present time, approximately 33% of the world population has accessibility to the Internet. The Internet is an extraordinary entertainment and learning tool that may be utilized in a number of modes to increase the ability of a user to collect information. The principal components of the Internet are the World Wide Web (WWW) and e-mail. With the passage of time, the Internet has become the most effective business tool in the contemporary world. It can be described as a global meeting place where people from every corner of the world can come simultaneously.

In the history of mankind, the Internet is the greatest development in the domain of communication industry. Similar to each and every invention, the Internet carries a number of advantages and disadvantages. Nevertheless, the advantages of the Internet are so huge in number that they outperform the disadvantages quite easily.

Advantages of Internet

1. Information: The biggest benefit offered by the Internet is information. It functions as a valuable resource of information. You can find any type of information on any subject with the help of the search engines like Yahoo and Google.

2. Communication: The primary goal of the Internet is communication. It has done extremely well in this field, however the development process is still going on to make it more dependable and quick. By sending an e-mail, we can contact a person who is physically present thousand miles away within the fraction of a second's time.

3. Entertainment: Internet functions as a popular medium of entertainment. A wide variety of entertainment including video games, music, movies, chat room, news and others can be accessed through the Internet.

4. E-Commerce: E-commerce is the idea that is implemented for any form of commercial strategy or business transactions that entails transmission of data from one corner of the world to another. E-commerce has become a fantastic option through which you can shop anything.

5. Formation of Communities: Internet helps in formation of communities or forums. Here a number of people can participate in different types of debates and discussions, express their views and gather valuable knowledge.

6. Services: A variety of services are offered via Internet, for example job searching, online banking, buying movie tickets, hotel reservations and consultation services etc. When you avail these services offline, they become more expensive.

Disadvantages of Internet

1. Spamming: Spamming denotes distribution of unsolicited e-mails in large numbers. They are meaningless and they unnecessarily block the whole system. These activities are treated as illegal.

2. Theft of Personal Details: While using the Internet, there is high probability that your personal details like name, address and credit card number may be accessed by con artists and used for fraudulent purposes.

3. Pornography: Pornography is definitely harmful for your children. There are numerous pornographic sites available over the Internet and watching any of those can have very bad influence on the mental health of your children.

4. Virus Threat: Virus is a program that interrupts the usual operation of your personal computer system. PCs linked to the Internet have high probability of virus attacks and as a result of this your hard disk can crash, giving you a lot of trouble.

There are four major categories of Information system failure according to Lyytinen and Hirschheim . The categories are as follows;

Process failure: “this occurs when an Information system project cannot be developed within an allocated budget and/or time schedule”. The project development results in overspending in both cost and time.

Correspondence failure: this occurs when the objectives and goals of the systems design are not met.

Interaction failure: This is attributed to the level of end-user usage or adoption or acceptance of the implemented information system. User attitudes, data packets, user satisfaction and the degree of adoption are measures of usage of information system usage.

Expectation failure: this is the inability of a system to meet its stakeholders' requirement, expectations or values

Hardware design/specification error

Software developmental error: this is error due to imperfect software development as a result of inadequate test run of the program and poor user interface among others

End user error: this arise a result of inadequate training and/or user resistance.

Majors causes of Information Systems Failure

Unclear goals: lack of well defined project goals and objectives which is key to the success of any IS project development. There is also need to state clearly the information need of an organization and also the adoption process before attempting to introduce an information system

Improper reporting structure/Miscommunication: since the development of large IS projects is the work of a team drawn from diverse groups of people with responsibilities to ensure the project's success which includes IS staff, end users and senior management, there is need for the establishment of clear lines of communication and well-defined lines of authority and responsibility among team members. Communication in project teams is "essential to sort out dispute concerning requirements of design decisions among project members"

Inept/incompetent leadership: Poor management of the project and lack of good leadership responsible for coordination and control, measurement of progress and making of vital decisions at different phases of the project.

Poor technology base or infrastructure: lack of adequate technological base needed for successful implementation of the kind of systems development being considered. According to Land in G. B. Davis the distance between the existing system and the replacement system is essential for the success of an information system.

Poor project management: this has to do with inadequate measurement system to measure progress and equally identify potential risks in time to mitigate them.

Lack of technical competence: the technological know-how of information systems staff is very vital to the success of IS projects as lack of familiarity with an information technology new to the IS staff is contributory to IS project failure. If a user is improperly trained then the likelihood of them making major errors is increased due to their lack of knowledge of the system. Failures by reason of lack of training should not be regarded as an error due to the individual operator as is likely with a poorly designed user interface, but as a mistake by the management.

Scope creep: projects excessively grand in scope usually have higher risks and higher complexities and therefore more prone to failure. Scope is the initial "blueprint" of an implementation plan.

Faulty hardware can bring about serious system failure. This factor is then again an essential one that should be given due consideration together with the more common software errors. Faulty hardware should be taken into thought when designing the systems in order to try and reduce the impact of the failure. Hardware failure is not as likely to occur as software faults but can be as damaging.

Internet Protocols

The Internet is often confused with the World Wide Web. The misperception is that these two terms are synonymous. The Internet is the collection of the many different systems and protocols. The World Wide Web, developed in 1989, is actually one of those different protocols. As the name implies, it allows resources to be linked with great ease in an almost seamless fashion.

The World Wide Web contains a vast collection of linked multimedia pages that is ever-changing. However, there are several basic components of the Web that allow users to communicate with each other. Below you will find selected components and their descriptions.

Domain Name System (DNS)

An Internet address has four fields with numbers that are separated by periods or dots. This type of address is known as an IP address. Rather than have the user remember long strings of numbers, the Domain Name System (DNS) was developed to translate the numerical addresses into words.

URLs

Addresses for web sites are called URLs (Uniform Resource Locators). Most of them begin with http (HyperText Transfer Protocol), followed by a colon and two slashes. For example, the URL for the Florida Center for Instructional Technology is https://fcit.usf.edu/ .

Some of the URL addresses include a directory path and a file name. Consequently, the addresses can become quite long. For example, the URL of a web page may be: https://fcit.usf.edu/holocaust/default.htm. In this example, "default.htm" is the name of the file which is in a directory named "holocaust" on the FCIT server at the University of South Florida.

Each part of a domain name contains certain information. The first field is the host name, identifying a single computer or organization. The last field is the top-level domain, describing the type of organization and occasionally country of origin associated with the address.

Top-level domain names include:

.com	Commercial
.edu	Educational
.gov	US Government
.int	Organization

.mil	US Military
.net	Networking Providers
.org	Non-profit Organization

Domain name country codes include, but are not limited to:

.au	Australia
.de	Germany
.fr	France
.nl	Netherlands
.uk	United Kingdom
.us	United States

Paying attention to the top level domain may give you a clue as to the accuracy of the information you find. For example, information on a "com" site can prove useful, but one should always be aware that the intent of the site may be to sell a particular product or service.

Transmission Control Protocol (TCP)

TCP is a connection-oriented protocol and offers end-to-end packet delivery. It acts as back bone for connection. It exhibits the following key features:

- Transmission Control Protocol (TCP) corresponds to the Transport Layer of OSI Model.
- TCP is a reliable and connection-oriented protocol.
- TCP offers:
    - Stream Data Transfer.

- Reliability.
- Efficient Flow Control
- Full-duplex operation.
- Multiplexing.

- TCP offers connection oriented end-to-end packet delivery.
- TCP ensures reliability by sequencing bytes with a forwarding acknowledgement number that indicates to the destination the next byte the source expect to receive.
- It retransmits the bytes not acknowledged with in specified time period.

TCP Services

TCP offers following services to the processes at the application layer:

- Stream Delivery Service
- Sending and Receiving Buffers
- Bytes and Segments
- Full Duplex Service
- Connection Oriented Service
- Reliable Service

Stream Deliver Service

TCP protocol is stream oriented because it allows the sending process to send data as stream of bytes and the receiving process to obtain data as stream of bytes.

Sending and Receiving Buffers

It may not be possible for sending and receiving process to produce and obtain data at same speed, therefore, TCP needs buffers for storage at sending and receiving ends.

Bytes and Segments

The Transmission Control Protocol (TCP), at transport layer groups the bytes into a packet. This packet is called segment. Before transmission of these packets, these segments are encapsulated into an IP datagram.

Full Duplex Service

Transmitting the data in duplex mode means flow of data in both the directions at the same time.

Connection Oriented Service

TCP offers connection oriented service in the following manner:

1. TCP of process-1 informs TCP of process – 2 and gets its approval.
2. TCP of process – 1 and TCP of process – 2 and exchange data in both the two directions.
3. After completing the data exchange, when buffers on both sides are empty, the two TCP's destroy their buffers.

Reliable Service

For sake of reliability, TCP uses acknowledgement mechanism.

User Datagram Protocol (UDP)

Like IP, UDP is connectionless and unreliable protocol. It doesn't require making a connection with the host to exchange data. Since UDP is unreliable protocol, there is no mechanism for ensuring that data sent is received.

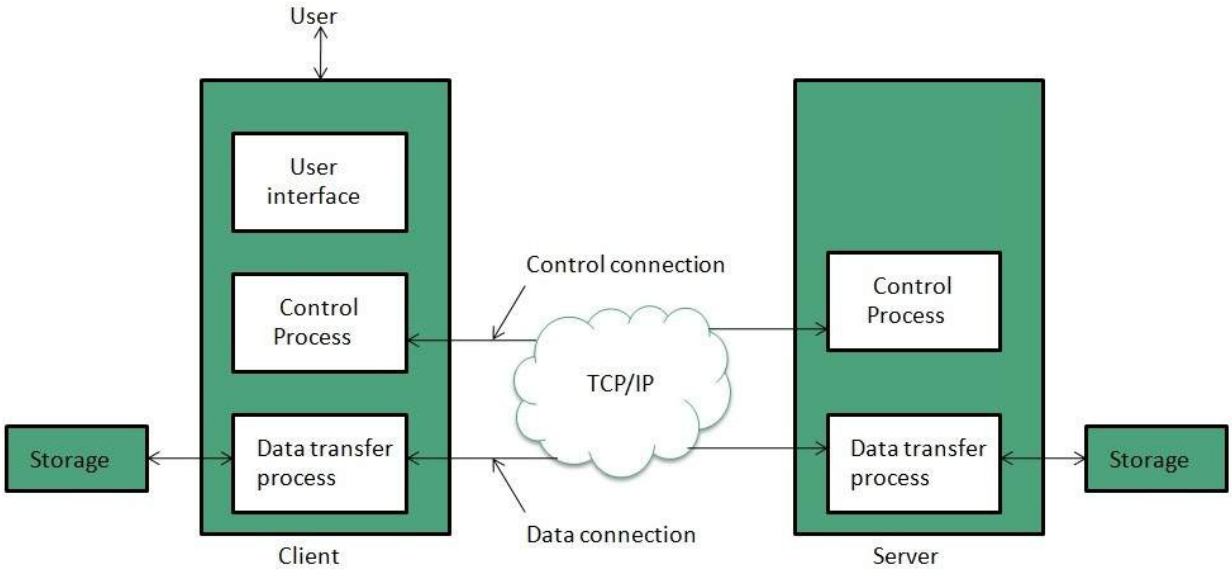
Points to remember:

- UDP is used by the application that typically transmit small amount of data at one time.
- UDP provides protocol port used i.e. UDP message contains both source and destination port number, that makes it possible for UDP software at the destination to deliver the message to correct application program.

File Transfer Protocol (FTP)

FTP is used to copy files from one host to another. FTP offers the mechanism for the same in following manner:

- FTP creates two processes such as Control Process and Data Transfer Process at both ends i.e. at client as well as at server.
- FTP establishes two different connections: one is for data transfer and other is for control information.
- **Control connection** is made between **control processes** while **Data Connection** is made between<="" b="">
- FTP uses **port 21** for the control connection and **Port 20** for the data connection.



Trivial File Transfer Protocol is also used to transfer the files but it transfers the files without authentication. Unlike FTP, TFTP does not separate control and data information. Authentication exists, TFTP lacks in security features therefore it is not recommended to use TFTP.

Electronic Data Interchange (EDI)

What is EDI?

It is the computer-to-computer exchange of business documents in a standard electronic format between business partners.

By moving from a paper-based exchange of business document to one that is electronic, businesses enjoy major benefits such as reduced cost, increased processing speed, reduced errors and improved relationships with business partners. Learn more about the benefits of EDI
Each term in the definition is significant:

Computer-to-computer– EDI replaces postal mail, fax and email. While email is also an electronic approach, the documents exchanged via email must still be handled by people rather than computers. Having people involved slows down the processing of the documents and also introduces errors. Instead, EDI documents can flow straight through to the appropriate application on the receiver's computer (e.g., the Order Management System) and processing can begin immediately. A typical manual process looks like this, with lots of paper and people involvement but the EDI process looks like this — no paper, no people involved:

Working of EDI

1. Preparation of electronic documents

The first step in the sequence of EDI is the collection of information and data. The way to collect the required information should be same as the way to do it in the traditional system. However, instead of printing out the data on paper in tradition, the system has to build an electronic file or database to store those data. In the case of companies who already use computer to issue their documents like purchase orders, they may already have some sort of databases which store that information, then they fan start with the next step described below.

2. **Outbound Translation**

The next step is to translate the electronic file or database in to a standard format according to the specification of the corresponding document. The resulting data file should contain a series of structured transactions related to the purchase order for example. If more than one company is involved in the particular transaction, individual files should be produced for each of them.

3. Communication

Then the computer should connect and transmit those data files to the pre-arranged Value Added Network [VAN} automatically. The VAN should then process each file and route the appropriate electronic mailboxes according to the destination set in the file.

4. Inbound Translation

The designated company should be able to retrieve the file from their electronic mailboxes in a constant period, and then reverse the process by translating the file from the standard format into the specific format required by the company's application software.

5. Processing the Electronic Documents

- **Business documents** – These are any of the documents that are typically exchanged between businesses. The most common documents exchanged via EDI are purchase orders, invoices and advance ship notices. But there are many, many others such as bill of lading, customs documents, inventory documents, shipping status documents and payment documents.
- **Standard format**– Because EDI documents must be processed by computers rather than humans, a standard format must be used so that the computer will be able to read and understand the documents.
- **Business partners** – The exchange of EDI documents is typically between two different companies, referred to as business partners or trading partners. For example, Company A may buy goods from Company B. Company A sends orders toCompany B. Company A and Company B are business partners.

The internal application system of the designated company can process the received documents now. All the resulted documents corresponding to the received transaction should be used by the same processes or steps to transmit back to the transaction initiator.

Since EDI (Electronic Data Interchange) is an important and frequent communication among non-human parties (i.e. computer-based systems), it is important that **EDI standards** are created, revised, and followed throughout the practice of EDI communication. EDI is considered a business conversation that is documented in a technical fashion. It is completely logical that EDI standards should then be maintained rigorously.

EDI Standards for Internet Transmissions

In addition, EDI standards specifically for Internet-based transmissions are being created as well. For email-based EDI data, the EDI standard is known as RFC 3335 in 2002, which outlines various data security features that ultimately standardize email-based transmission (data privacy, authenticity, non-duplication, etc.). Similarly, the EDI standard RFC4130 was developed for AS2 transfers (also known as MIME-based HTTP EDIINT) which offer the same type of guidelines, the only difference being they are done over HTTP, and another EDI standard is in development for FTP based transfers (AS3).

The Four Sets of EDI Standards

The four sets of official EDI standards, although internationally accepted, are usually used according to location. The EDI standards UN/EDIFACT is the international EDI standard, but is mainly used outside of the US/Canada. One of the reasons that Europe is prone to using the EDIFACT EDI standards is because they adopted the system earlier than other regions. The UN/EDIFACT (United Nations/Electronic Data Interchange For Administration, Commerce, and Transport) is an EDI standard that was created under the work of the United Nations. The EDIFACT EDI standard outlines rules by which to structure data, offers a standardized procedure for interactive exchange, and provides a "standard message" so that information can be shared between industries and countries. The industries who use EDIFACT EDI standards most predominantly are the high-tech, civil aviation, retail and tourism industries.

EDI Standards The UN's EDIFACT

The UK retail industry is an exception to the use of UN/EDIFACT, as this industry uses the TRADACOMS EDI standard. TRADACOMS (developed by Article Numbering Association, GS1 UK) was one of the earliest EDI standards developed. This EDI standard was initiated in 1982, and shares many attributes with EDIFACT, minus a few key difference. Although the EDI standard lost many of its followers in 1995, although the retail industry has held on to the standard and probably will for some time. Because TRADACOMS is only set up for UK currency, it can only be used within the UK.

The North American ANSI ASC X12 Standard of EDI Standards

In the US and Canada, the ANSI ASC X12 (American National Standards Institute Accredited Standards Committee X12) standard is used almost exclusively for EDI standards. This EDI standard was created in 1979 by ANSI (American National Standards Institute), although the "X12" section of the standard term is arbitrary, simply a way to distinguish the EDI standard from other developments. Industries using this type of EDI standard include healthcare, insurance, government, transportation, and finance, among others.

Benefits of EDI

•**Lower Processing cost** : The cost of the processing EDI documents is much lower than processing paper documents

• Improves the overall quality of data : Improvements in overall quality can be achieved through better record keeping, fewer errors in data, reduced processing time and less reliance on human interpretation

• Helps to reduce inventory level: Inventory level can be reduced. EDI permits faster and accurate filling and exchange of orders which helps to reduce the unwanted level of inventory. • Data is entered only at the source: Transfer of information from computer to computer is automatic and there is no need of feeding data frequently. Helps to manage information system effectively and efficiently

. • Customer relations can be improved: Customer relations are improved through better quality and speed of services.

Drawbacks:

- High cost: One of the severe criticisms levelled against EDI is its high cost. EDI applications are costly to develop and operate.
- Limited accessibility: EDI applications do not allow consumers to communicate and transact with the suppliers in an easy and a direct way,as Networking facilities require certain software to access and communicate forms through EDI. Rigid requirements
- EDI applications require highly structured protocols,softwareetc for information interchanged insists up on transacting parties to follow rigid agreements about the

structure and meaning of data. These agreements are time consuming to negotiate, rigid and difficult to maintain.

- **Partial solutions**: EDI applications suggest only partial solutions to organisation in their transacting process. Complete automation of transacting process is difficult to materialize in the constantly changing business environment. There will be time gap between placing order for products and the final settlement of bills. This may lead to discrepancies between transactions.
- **Closed world**: The scope of EDI application is very limited. The concept of closed world is outdated consequent on the popularity of WWW makes it easier for organisations to enter into open web related market place.

E.MARKETING

What is E-Marketing?

Web marketing, digital marketing, internet marketing or online marketing; all of these words are synonymously used for E-Marketing. What it means is the marketing of products or services by using the internet. E-mails and wireless marketing also fall into the category of e-marketing.

Features of E-Marketing

Big or small, many businesses are using e-marketing because of various features and multiple advantages. Some of the important features are as follows;

E-marketing is Cheaper than Traditional Marketing

If you compare its cost with traditional marketing media such as newspaper ads and billboards, then it's much cheaper and efficient. You can reach a wide range of audience with very limited resources.

Tangible ROI

Small business owners can now check the turnover rate or ''action taken'' with the help of Infusionsoft. It analyzes multiple things like views of videos, number of emails opened, and per click on the link. Most importantly, it tells us how much sales the business has been made as a result of e-marketing.

24/7/365 Approach

It works 24 hours a day, 7 days a week and 365 days of the year. It doesn't matter whether you're homesick, sleeping, or attending a casual meetings; but e-marketing is always hard at work.

Eliminate Follow-up Failure

Elimination of follow-up-failure is the main secrete behind the success of small business. It is done by entering your business figures into the Infusionsoft, and then its automated marketing system will provide you the custom-tailored information about your business, which areas to improve and what product to discontinue.

Advantages of E-Marketing

Some of the important advantages of e-marketing are given below;

1. **Instant Response.** The response rate of internet marketing is instantaneous; for instance, you upload something and it goes viral. Then it'd reach millions of people overnight.
2. **Cost-Efficient.** Compared to the other media of advertising, it's much cheaper. If you're using the unpaid methods, then there's almost zero cost.
3. **Less Risky.** When your cost is zero and the instant rate is high; then what one has to loos. No risk at all.
4. **Greater Data Collection.** In this way, you have a great ability to collect a wide range of data about your customers. This customer data can be used later.
5. **Interactive.** One of the important aspects of digital marketing is that it's very interactive. People can leave their comments, and you'll get feedback from your target market.
6. **Way to Personalized Marketing.** Online marketing opens the door to personalized marketing with the right planning and marketing strategy, customers can be made to feel that this ad is directly talking to him/her.
7. **Greater Exposure of your Product.** Going viral with one post can deliver greater exposure to your product or service.

8. **Accessibility.** The beauty of the online world and e-marketing is that it's accessible from everywhere across the globe.

Disadvantages of E-Marketing

E-Marketing is not without disadvantages, some of them are as follows;

1. **Technology Dependent.** E-Marketing is completely dependent on technology and the internet; a slight disconnection can jeopardize your whole business.
2. **Worldwide Competition.** When you launch your product online, then you face a global competition because it's accessible from everywhere.
3. **Privacy & Security Issues.** Privacy and security issues are very high because your data is accessible to everyone; therefore, one has to be very cautious about what goes online.
4. **Higher Transparency & Price Competition.** When privacy and security issues are high, then you have to spend a lot to be transparent. Price competition also increases with higher transparency.
5. **Maintenance Cost.** With the fast-changing technological environment, you have to be consistently evolved with the pace of technology and the maintenance cost is very high.

Types of E-Marketing

When we talk about digital and email marketing, then there are different type and methods of e-marketing which are as follows;

Email Marketing

Email marketing is considered very efficient and effective because you already have a database of your targeting customer. Now, sending emails about your product or service to your exact targeted market is not only cheap but also very effective.

Social Media Marketing

Social media is a great source of directly communicating with your customers to increase your product awareness. It could be done by any or all of the social media channels such as LinkedIn, Facebook, Instagram, Twitter, Google, and YouTube. Some of the important advantages of social media are as follows;

- Increase product awareness and reputation means more sales.
- Directly communicating with your customers can increase brand loyalty.
- You can increase the number of visits to your website and rank it up in the search engine.
- Targeting the exact audience will help you to know more about your customers' needs.

Video Marketing

It is said that a picture is worth a thousand words, and a video is worth thousands of pictures. You can catch the attention and emotions of your target market by showing them a video clip about your product or service.it is very effective if it conveys the right message to the right audience.

Article Marketing

Engaging quality content by providing valuable information to your targeted market, what people are looking for over the internet to solve a certain problem? It is a consistent and ongoing process of delivering quality content to your readers. It is not always about selling; you're educating your audience and helping them by adding some value in their lives.

Affiliate Marketing

Affiliate marketing is the process of promoting some products of certain brands and earning your commission out of every sale. It works for everyone; win, win situation.

Wrapping Up E-Marketing

It doesn't matter whatever type of marketing methods you're using; it has to be well focused and researched about your target market. Customer's needs and demands should also be kept in mind; there should be consistency and coherency between the market and your product. Anything out of ordinary will make your customers suspicious. It has to be realistic.

UNIT IV

BUSINESS MODELS of E-COMMERCE

There are many e-commerce businesses models, and more are being invented every day. The number of such models is limited only by the human imagination, and our list of different business models is certainly not exhaustive. However, despite the abundance of potential models, it is possible to identify the major generic types (and subtle variations) of business models that have been developed for the e- commerce arena and describe their key features. It is important to realize, however, that there is no one correct way to categorize these business models.

The type of e-commerce technology involved can also affect the classification of a business model. M-commerce (mobile commerce), for instance, refers to e-commerce conducted over wireless networks. The e-tail business model, for instance, can also be used in m-commerce, and while the basic business model may remain fundamentally the same as that used in the B2C sector, it will nonetheless have to be adapted to the special challenges posed by the m-commerce environment. Finally, you will also note that some companies use multiple business models. For instance, eBay.com can be considered as a B2C market maker.

Business to Business [B2B]

B2B (business – to business) is the major and valuable model of e commerce.B2B (business – to business) e commerce is conducted between two separate businesses and has been in effect for many years. E commerce plays an important role in enhancing and transforming relationships between and among business. B2B (business – to business)is also known as e biz, is the exchange of products, services, or information between businesses rather than between businesses and consumers. Although early interest centered on the growth of retailing on the Internet (sometimes called e tailing), forecasts are that B2B revenue will far exceed business to consumers [B2C] revenue in the near future.

B2B (business – to business)is a kind of e commerce, which refers to a company selling or buying from other companies. One company communicates with other companies

through electronic Medias. Some of these transactions include sending and receiving orders, invoice and shopping orders. It was an attractive alternative to the current process of printing, mailing various business documents.

Some B2B applications are the following:

1. Supplier Management Electronic applications in this area helps to speed up business partnerships through the reduction of purchase order processing costs and cycle times, and by maximizing the number of purchase order processing with fewer people.

2. **Inventory Management** Electronic applications make the order ship bill cycle shorter. Businesses can easily keep track of their documents to make sure that they were received. Such a system improves auditing capabilities, and helps reduce inventory levels, improve inventory turns, and eliminate out of stock occurrences.

3. **Distribution Management** Electronic based applications make the transmission of shipping documents much easier and faster. Shipping documents include bill of lading, purchase orders, advance ship notices, and manifest claims. E commerce also enables more efficient resource management by certifying that documents contain more accurate data.

4**. Channel Management** E commerce allows for speedier distribution of information regarding changes in operational conditions to trading partners. Technical, product and pricing information can be posted with much ease on electronic bulletin boards.

5**. Payment Management** An electronic payment system allows for a more efficient payment management system by minimizing clerical errors, increasing the speed of computing invoices, and reducing transaction fees and costs. Many organizations are implementing electronic commerce in numerous ways and receiving tangible benefits but as electronic commerce matures and develops, these ways are likely to change based on the accelerating adoption rate.

There are three specific implementation models of B2B E commerce:

• **Transaction based** a single company establishes a common transactional method for conducting business with its major customers or key suppliers. This offering is common across all business units within the company and includes common tools, techniques, and infrastructure.

• **Process based** Two companies establish a common business process to conduct business efficiently between the two firms. The two firms establish and share this common practice jointly, both within their firm and outside their organization with this predetermined trading partner.

• **Strategic relationship based** – Two or more companies establishing a strategic relationship partnership based on all major interactions between the organizations. This includes transactions, processes, and any other collaboration between the organizations. From a technology perspective this includes linking the CRM, ERP and SCM systems of the two organizations. This way each organization can actually monitor sales activity, production schedules, inventory management, and technical service exchanges

Business – to Consumer [B2C]

This e commerce consists of the sale of products or services from a business to the general public. Products can be anything from clothing to flowers and the products can also be intangible products such as online banking, stock trading, and airline reservations. Sellers that use B2C business model can increase their benefits by eliminating the middlemen. This is called disintermediation because businesses sell products directly to consumers without using traditional retail channels.

It is basically a concept of online marketing and distributing of products and services over the internet. It is a natural progression for many retailers or marketer who sells directly to the consumer. The general idea is, if you could reach more customers, service them better, make more sales while spending less to do it that would the formula of success for implementing a B2C e commerce infrastructure.

A business firm can also establish relations with customers through electronic medias. For this, the company has to design a web site and place it on the internet. On the web site, the

company can publish all details about the product and services and that benefits customers to place orders for these goods from the web site.

To maintain customers always with company's web site, the company must update the information on the web regularly. Consumers always demand greater convenience and lower prices. Electronic commerce provides consumers with convenient shopping methods. Business – to Consumer [B2C] e□commerce provides many benefits to the business. Some of them are:

• Lower Marketing costs

• Lower order processing cost

• Better customer service

• Lower customer support cost

• Wider markets

Business – to –Government [B2G]

e□commerce B2G refers to the supply of goods and services for online government procurement. This is a huge market which mainly covers everything from office supplies to military equipment.B2G websites offer lower costs and greater choice to the administration, and make government tendered offers more accessible to companies.B2G is a derivative of B2B marketing and often referred to as a market definition of public sector marketing which encompasses marketing products and services to various government levels including□federal, state and local□ through integrated marketing communications techniques using as strategic public relations, branding, , advertising, and web based communications.

A website offering Business – to –Government services could provide businesses with the following.

• A single place to locate applications and tax forms for one or more levels of government (city, state or local)

• To provide the ability to send in filled out forms and payments

• To update corporate information

• To request answers to specific questions

Business – to –Government decreases the cost of transactions with reference to licenses, selling publication of government documents, tax returns and general dealings with businesses and the public. It has increased information flow.

Business to Employee [B2E]

B2Euses an intra -business network which allows companies to provide products and/ or services to their employees. It is the use of intranet technologies to handle activities that take place within a business. An intranet is an internal network that used Internet technologies.

Business to employee [B2E] is different from other type since it is not a revenue form of business. Otherwise, it increases profits by reducing expenses within a company. Instead of having to look everything up manually they can collaborate with each other and exchange data and other information.

Many companies have found that B2E technologies have dramatically reduced theadministrative burdens with the human resources department. Admittedly, maintaining employee information has little to do with commerce, but this term has grown to encapsulate this activity into the B2E definition. Examples of B2E applications include

1. Online insurance policy management

2. Corporate announcement dissemination

3. Online supply requests

4. Special employee offers

5. Employee benefits reporting

6. 401(k) Management

E-procurement

Electronic procurement, usually simply referred to as "e-procurement", is a term used in professional purchasing and e-commerce for B2B transactions – that is to say business to business. It isn't about ordering goods from individual customers, but rather communication between businesses. E-procurement isn't targeted at private customers shopping in a web shop, but instead at companies using a digital solution to regulate purchases between one another. There are **several advantages to using this modern purchasing solution**, with the automation of several parts of the process saving a considerable amount of time for the companies involved.

In the course of digitization, many areas within companies have changed. Back office processes in particular can be carried out more efficiently with digital solutions. This also includes purchasing. The fact that e-procurement plays an increasingly important role is also because some goods and services, such as software or web services, can only be purchased digitally anyway.

In most cases, electronic procurement is based on so-called ERP systems. **Enterprise resource planning** systems are software solutions specially designed for companies, which support business processes and simplify merchandise management.

Definition

E-procurement is the shortened form for electronic procurement. It uses digital solutions to make purchases within a company. Electronic procurement is a term from the business-to-business (B2B) sector, as it refers exclusively to company transactions.

What is e-procurement?

In principle, e-procurement is the digital process of **procurement**. This means that paper order forms, catalogs, and paper price lists aren't needed, and communication with the supplier is **predominantly digital**. When it comes to e-procurement, companies rely on software designed to make their purchasing processes more efficient.

It is crucial for e-procurement that the purchasing process is perfectly integrated. Ideally, the systems of both businesses would work together seamlessly – the company can then immediately see whether the supplier has the required item in stock, and whether the order has been received.

Both parties now mostly rely on the internet for communication purposes. Due to the need to **keep data secure**, some companies also prefer networking via their own extranet. Business partners can then access each other's intranet via a VPN connection, for example. The data is transmitted via a secure IP tunnel.

Steps of e-procurement

E-procurement systems should offer a digital equivalent for every steps of the purchasing process. Purchasing processes often also require access to other areas of a company, and so electronic procurement can also be linked to processes and programs from other departments as well.

Supply management

A large part of purchasing work consists of obtaining and comparing supplies. **E-procurement solutions can centralize this work**, so you can maintain a clear overview. However, this depends on how the system used is set up. Sometimes all supplies get entered automatically into the software. On the most basic level, however, online catalogs can be used to research supply levels and types, whether this is internal or external.

Approval process

In most companies, specific approval procedures are required before a transaction can be executed. Because not every employee is allowed to make certain orders, "parent authorities" must give their approval. This kind of process can be **simplified and sped up** by electronic procurement systems. The software can automatically forward the approval process to the next person. In addition, purchasing rights can be assigned and revoked centrally via the software, which can also save time.

Transaction

Finally, the e-procurement system can also **carry out the actual order**. Data can be transferred in various ways. In some systems, data can be forwarded directly via the internet or via VPN to the supplier's server. It is slightly more complicated if information first has to be sent by e-mail to the supplier, but even this process can be sped up if both sides use standardized formats through which the data can be transferred easily.

There is a difference between **automatic and manual procurement orders**:

- **Automated procurement:** depending on the product required, e-procurement systems can order goods automatically. This procedure is suitable for articles that are necessary for production, for example. The key factor here is that there are **fixed supply contracts**.

- **Manual procurement:** e-procurement can also support individual procurements that are required at irregular intervals, and are not tied to a particular supplier and sometimes require more complex approval processes.

Tracking

Even after successful order placement, electronic procurement software can still be of use. If the procurement system is given real-time data from the supplier, it is possible to **monitor the delivery**. This allows the order to be tracked from the manufacturer or distributor to the ordering company.

Payment

Financial processing can be handled via the electronic procurement system, provided that there is a link to the accounting software. Both participants can benefit from online processing. On the supplier's side, it is possible to make invoices via the system. The invoice can also be transmitted directly via the system, and is sent to the person responsible.

However, electronic invoices must be signed with an approved electronic signature. This feature must be integrated in the corresponding e-procurement system for payments to be valid.

Reporting

Since the e-procurement system documents all processes, **creating reports is much easier** than with traditional procurement, which relies primarily on paper documents. Analyses can often fall back on the numerous data stored in the electronic system. Reports on individual employees, different departments, or the suppliers used are all possible. This makes it easy to report on the effectiveness of a company's own employees, as well as the performance of its suppliers.

Necessary standards

For e-procurement to function at its best, certain standards should be adhered to – at best, internationally. These go beyond the obvious technical requirements.

- **Product identification:** retailers have introduced **standardized identification numbers**. Just the number tells you what the product is without having to look at and compare the other product specifications. Standardized product identifications can also be registered more easily by most databases, such as EAN, UPC.

- **Classification**: classification of products and services is not always easy, as it is sometimes possible to assign them to several categories. However, **uniform standards are useful** so that products can be organized into catalogs and correctly categorized. In this way, the customer can also find the product faster.

- **Formats:** to ensure that both businesses receive the information they need, it is necessary to use data formats that ideally can be handled by all parties without the need for conversions, such as with CSV, PRICAT, PRODAT, cXML.

- **Transactions:** to complete transactions, purchase orders, and send out deliveries as quickly as possible, it is a good idea to use a uniform format for any transaction documents, which can then be easily processed by machines or software.

- **Business processes:** in addition to individual transactions, it is possible to standardize business process mapping. This allows multiple actions within a process to be triggered at once, such as with ebXML, Biztalk.

Different types of system

There are different types of systems that can be distinguished according to technical aspects, or according to which one of the commercial business partners involved determines the system defaults.

Technical implementation

Technical implementation refers to the communication between the companies, i.e. between buyers and suppliers, using uniform standard forms. This allows different software solutions to exchange information.

The systems are distinguished primarily by how “open” they are:

- **Closed systems:** in a closed system, suppliers and purchasers are connected. To do this, both sides must either use the same software or adapt their interfaces. The latter can sometimes be very complex, which is why the installation is only worthwhile if it can be assumed that both sides communicate with each other permanently and frequently.

- **Semi-open systems:** these systems usually originate from the supplier. They have a self-contained network and offer their customers access via an interface. Companies can either access the system via a browser and place orders, or adapt their own software to the suppliers interface.

- **Open systems**: with an open system, there is no direct connection between the systems of both parties. Instead, a kind of online catalog is regularly posted on the internet by the supplier, through which customers can place orders. This system is asynchronous because the software does not compare orders and stocks in real time.

Commercial implementation

Commercial implementation is differentiated according to **which side of the transaction (supplier or purchaser) makes the specifications for the system used**. This is usually related to which of the two partners is **financially stronger and more influential**.

Although the three models presented below are in principle independent of each other, it is now often **possible to combine the different systems** due to increasing standardization of formats and techniques.

Sell-Side

In this model, the **vendor specifies** how the recipients are to place orders. However, since it is in the interest of the provider to generate as much turnover as possible, naturally it is in the interest of the vendor to guarantee buyers the easiest possible access. For this purpose, the supplier can provide an easy-to-use web application, offer corresponding software, or supply the customer with a hardware solution.

Sell-side systems are often comparable to a web shop, because the customer can see the product range of the supplier and place orders directly. The disadvantage for the buyer is that there is **no possibility to compare offers**. Suppliers' offers can be integrated in different ways. For example, it is possible for suppliers to send their information by e-mail, and these are then entered manually into the company's system.

Buy-Side

If companies have enough influence or demand, they can choose for their system to be used by the suppliers. Suppliers must then adapt their solutions to the system of the respective company. This gives the company many options and makes it easier to customize processes (e.g. rights distribution and accounting simplification), which would be more difficult with a sell-side solution.

Companies often implement these structures in the form of **desktop purchasing systems (DPS).** This means that every employee with corresponding rights can process all orders from their workstation. Such solutions do not have to be developed or maintained by the company

itself. Instead, procurement service providers often offer complete packages where maintenance is carried out by external specialists.

Marketplace

A marketplace is provided by a third party. In this system, the starting position for suppliers and purchasers is the same: **both sides have to adapt their processes to the specifications of the e-procurement operator**, who charges both for use of the system. It is also possible that a group of customers and suppliers could offer to manage this kind of marketplace. The advantage for purchasing companies is that, unlike the sell-side model, several providers are available in this kind of marketplace. However, this kind of solution cannot be easily integrated into the purchaser's ERP system. To overcome this, some marketplaces offer additional services that make working with the system easier.

Advantages of e-procurement over traditional methods

Electronic procurement can have considerable advantages for both purchasing companies and the suppliers involved. However, first an e-procurement system must first be put into use – and this does not only apply to the technical implementation, but includes the work routine within the company, which must be adapted to the new system. Tasks may have to be redistributed and all employees have to be trained in electronic procurement.

Once these initial challenges have been made, e-procurement offers the **following advantages**:

- **Automation:** in traditional non-digital procurement, purchasing and related departments spend a lot of time performing routine tasks over and over again. Requesting supplier catalogs takes time – this process that can be automated through electronic procurement.

- **Procurement time:** even without automation effects, e-procurement saves the working time of the employees involved and reduces the procurement time. This can already be attributed to the fact that the transmission speed of digital data is higher than that of printed information. If a supplier has a good e-procurement interface, order data is immediately integrated into the supplier's system. This saves time in processing orders.

- **Distribution of rights:** an electronic procurement system also helps users to optimize the allocation and compliance with **release rights**. This technology can be used to ensure that no one carries out orders without the appropriate rights – they have to have been approved first. Corresponding rights can be assigned quickly via an IT solution and can also be withdrawn easily.

- **Costs:** procurement processes are often costly. Printing and paper costs alone cost a lot of money, and are not good for the environment. The installation of e-procurement systems is also expensive, but in the long run it pays off to purchase and integrate digital solutions.

- **Flexibility:** with e-procurement offer comparison and research is much easier to carry out.

- **Quality:** increasing levels in electronic procurement are primarily related to the quality of product information. Since all information (such as product data) is transmitted electronically, e-procurement **reduces the number of data entry errors**. In addition, the digital publication provides suppliers with much more information on goods, which in turn can be filtered as required. This means that **every buyer can display exactly the data that is important**. In addition, product or service information can be enhanced by high-quality multimedia content (images, sound, video).

Security aspects of electronic procurement

In the professional procurement of services and goods, important information passes between businesses, and **it is essential that the exchange is secure and reliable.**

- **Data security:** when using e-procurement systems, it must be ensured that the transmitted data **cannot be read or accessed by third parties**. It is best if data transmission is not carried out via the public internet. It is better to use a secure, encrypted VPN connection.

- **Reliable transmission:** it is also important that all information reaches business partners without missing any details. This is generally easier to achieve with e-procurement than with traditional purchasing methods.

- **Binding data:** in e-procurement, the programs transfer contracts and other legally-binding documents. Appropriate measures are needed to ensure that both sides can be sure that commitments are being kept. In some cases, for example, a password may suffice to provide a binding confirmation, in other cases a legally binding digital signature will be required.

Unit—V

Trade Cycle

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

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

The trade cycle has to support:-

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

Three generic trade cycles can be identified: -

1. Regular, repeat transactions between commercial trading partners (Repeat Trade Cycle).

2. Irregular Transactions between commercial trading partners where execution and settlement are separated (Credit Transactions)

3. Irregular transactions in once-off trading relationships where execution and settlement are typically combined (Cash Transactions)

Application of E Commerce in Manufacturing

Effective e-commerce lies in the ability to deliver a buyer-centric and engaging online experience that enables customers to interact and transact with the brand and allows

manufacturers to reduce administrative costs, increase sales and improve brand loyalty. This is achieved by reducing costs through the following means:

- Ensuring a minimum-touch, 100% accurate order in the least possible time;
- Understanding customer needs and behavior to deliver specific marketing messages to influence decision makers
- Providing a rich customer experience by leveraging powerful online and web based applications, such as a shopping cart within a content management system (such as Magento, Shopify, and BigCommerce).

These platforms will have plugins and applications available to help manage the experience on both the customer's and merchant's side, such as freight shipping applications, to aid in accurate shipping quotes to serve up to the customer in the shipping cart, and easier freight management for the shipper.

To achieve the above stated objectives, industrial manufacturers will need to:

- Aggressively adopt B2C and retail best practices (remember, even in B2B online sales, there are PEOPLE behind the decision making. See our first post on the Evolution of Logistics and Supply Chains in E-Commerce)
- Target customers with buyer-specific online promotions, recommendations (testimonials, user reviews) and messages
- Increase brand visibility by utilizing social media and content marketing
- Open new markets and channels through alternate business models, such as mobile commerce

Benefits of Application of E Commerce in Manufacturing

E-commerce is a way for manufacturers to experiment with new products without risking a significant investment. Instead of setting up brick-and-mortar stores, or keeping inventory on hand, you can start offering this new product on your new store:

- **Direct access to customers**. Besides having higher profit margins, you will interact with customers, letting you learn from them and fine-tune products.
- **More prospects**. A larger arena yields more sales possibilities, although you have to be cognizant of your existing distributors. Potential problems can often be sidestepped by offering your products to a different market, so you're not competing with your current network.
- **Opportunities to innovate**. Finding customers outside your existing relationships also frees you from the specs you have to adhere to now. If you have an idea for a better product, you can act on it, allowing for product analysis and iteration over time based on what your customers wants.
- **Scalability**. An effective application of e commerce in manufacturing will enable your organization to grow and scale easily to meet market demand and customer needs by opening new sales channels and continuously reaching new market segments.
- **Improved efficiencies**. Through integration to the enterprise resource planning (ERP) and other back-end business systems, ecommerce provides marked efficiencies for manufacturers. Customers are able to order online whenever and wherever suits them, customer service can focus on actual customer service functions – such as transparent freight shipping costs and timely shipping – rather than simply being order takers, and the need to rekey data in independent systems is eliminated, thereby eliminating the possibility of errors and improving shipping processes and increasing order throughput.
- **Improved brand awareness**. Just as ecommerce can help manufacturers and industrial distributors find new customers, so can it help improve brand awareness in the market place. Developing pages that can be indexed by search engine crawlers is the fastest way

to improve your site's search engine optimization and improve the likelihood that your target audience will know who you are.

- **Analytics.** The application of e commerce in manufacturing provides the perfect platform for an organization to launch a comprehensive analytics campaign. Through ecommerce, manufacturers and distributors can measure and evaluate marketing campaigns, sales effectiveness, product mix, inventory turns, customer sales effectiveness, and customer engagement like never before.

Application of Ecommerce in Wholesale Business

Wholesale Ecommerce has given businesses the platform to accelerate sales opportunities. Alongside an Ecommerce solution, wholesalers can rely heavily on an accounting/ERP system and/or an inventory management solution to run day-to-day wholesale operations. Yet, despite proficiently implementing systems and applications to perform their specific role within the organisation, they often operate in isolation.

Running multiple business systems that are not integrated results in disparate information, miscommunication and repetitive bi-directional data entry.

Wholesale and Ecommerce Integration

One of the biggest challenges wholesale businesses face is having the disconnection between Ecommerce and back-end systems. Integrating wholesale eCommerce with an accounting/ERP system and an inventory management solution provides the ability to synchronise information between systems and enables them to talk to each other.

Data integration and synchronisation will enable wholesale businesses to **streamline day-to-day operations** by eradicating repetitive bi-directional data entry. Streamlining manual administration tasks that surround back office activities not only improves speed and data accuracy, it also improves ROI and helps to drive the business forward. Why have an employee wasting valuable time processing orders and keeping an eye on inventory levels when it can be automated?

Here's a selection of common wholesale Ecommerce integration processes that businesses look to automate:

- Synchronisation of orders taken online and offline between systems
- Synchronisation of customer details including payment details and transaction IDs into an accounting/ERP system
- Automatic update of product details, stock levels and pricing to an online web store
- Automated data distribution including price changes, remove from sale notices, end of line information and delivery schedules
- Automatic update of wholesale eCommerce solution with a 'complete' or 'shipped' status when an invoice or delivery has been created in an accounting/ERP system
- Automatic update of stock levels (including returned stock) to warehouse(s), eCommerce and retail stores
- The creation and distribution of PO requisitions when an eCommerce order depletes stock levels below agreed levels
- Automated order placement with couriers and shipping services

Improving the way that data is processed and documented can play a significant role in improving company performance. Wholesale eCommerce integration can be achieved by deploying business process automation (BPA) functionality. BPA software, such as Codeless Platforms' BPA Platform, provides a positive influence on the performance of an organisations' systems and applications. Codeless Platforms' BPA Platform facilitates automated business processes between systems and applications that can be set to specific **business rules on a scheduled or event-driven basis**. This means that data can be passed between systems and applications in real-time without any employee intervention.

The benefits of integrated wholesale Ecommerce

Wholesale businesses that have integrated an eCommerce platform with other business systems and automated a number of wholesale processes can achieve the following commercial benefits:

- Removal of repetitive bi-directional data entry and administration errors
- Reduction in processing costs

- Remove the need to recruit seasonal or temporary employees
- Reduction in stock waste
- Optimised inventory levels
- Enhancement to communications between departments
- Increase in the visibility of critical information
- Improved procurement process flow

Application of Ecommerce in Retailing

Retailing is expected to change with the rapid development of new online sales and distribution channels that literally can be used from anywhere, anytime-from work, school, a hotel, car, or airplane. These developments should impact retailing as much as the advent of strip malls, catalogue retailing, and TV-based home shopping. Almost every retailer is re-evaluating every aspect of its operation from customer service to advertising, merchandising to store design, and logistics to order fulfilment. Furthermore, reacting to the pressure of retailers, suppliers are assessing technology based solutions to drive down costs (labour, delivery, and production) and become more efficient producers of goods.

Benifits

1. Establish an Online Presence

More than 80% of the online population has used the Internet to purchase something. Your customers expect you to be available, and this presence allows you to keep up with the competition. Otherwise, your audience will be flocking toward your competitors to make an online purchase.

2. Attract New Customers

As a business owner, you want to grow your business and attract new audiences. Physical retail relies on branding and customer relationships, but online retail has the added benefit of driving traffic from the search engines. If a customer is doing a search for photo editing software, for instance, they may land on your company even though they've never heard of you before.

3. Save on Operational Costs

Running an ecommerce store can actually save you money. How? With a web-based management system, you can automate inventory management and decrease the costs associated with it. Also, running an ecommerce store doesn't come with the same overhead costs as a physical store. The additional profit that is made from reaching more customers will offset any initial setup costs.

4. Better Understand Your Customers

It's difficult to build a customer persona when you're running a mom-and-pop shop. You can get a rough idea of who your customers are, but it's based on your perception rather than actual data. With an ecommerce store, you have the ability to track your customers' buying habits. What products are they most interested in? When are they likely to buy? What motivates them? All of this information can be used to sell more efficiently to your customers.

5. Boost Brand Awareness

Ecommerce will help your brand get more awareness in the online landscape. As you develop more web pages, the search engines can index them and boost your placement. It's important to use good keywords in your content that are optimized for your audience, as this is what will drive traffic to your site. As your site gets more visibility, people will become familiar with your brand and reputation.

6. Equip Customers with Information

When you have an ecommerce site, you can provide as much information as you want, which customers appreciate. From the product description to customer reviews to shipping charges, you can arm shoppers with the information they need to make informed buying choices, and you don't need to provide the staff to answer these questions. This leaves you with more time for other tasks around the workplace.

7. Drive Conversions and Sales

When you open up your business globally without any geographical or time constraints, you capture new audiences that you wouldn't be able to reach otherwise. With a well-designed

ecommerce site and a quality product, you can drive conversions and sales and experience a new level of growth. Analytics also helps you fine tune your marketing strategies so that you're reaching the right audience.

E Commerce for Service Sector

The E commerce for service Industry are explained below

E-Services

The delivery of services via the internet to consumers or other businesses can be referred to by the generic term of e-services. There is a wide range of e-services currently offered through the internet and these include banking, loans, stock trading, jobs and career sites, travel, education, consultancy advice, insurance, real estate, broker services, on-line publishing, and on-line delivery of media content such as videos, computer games, etc. This list is by no means exhaustive and it is growing all the time. In this lecture, we will give an overview of eservices.

In order to bring some order to the discuss of these wide variety of e-services, we organize them into the following categories, namely

1. **Web-enabling services,** which were previously provided by humans in office agencies and/or their branches. The primary purpose here is that these services help to save time and effort for the user; bring convenience, and improve the quality of life. In many cases, it can result in a reduced cost for the consumer.
   E-services that fall into this category include
   - Banking
   - Stock trading
   - Education

   In some cases, this may bring a new dimension to the original service, enhancing and altering it. E-education is an example of this. It may also bring into the catchments new groups of consumers of the service to whom it might not have been previously accessible.
2. **Matchmaking services.** These take a need from an individual or business customer and provide mechanisms (from providers) for matching that need.

E-services that fall into this category include

- Jobs and employment sites
- Travel
- Insurance
- Loans including mortgage loans
- Real estate sales
- Brokers

The advantage of this kind of matchmaking through the internet is that the ability to search electronically over a wider area to satisfy the customer need and to more precisely meet the customer need is greatly facilitated by both computerization and communication over the internet.

3. **Information-selling on the web.** This group essentially sells information content of one sort or another and includes ecommerce sites that provide on-line publishing such as web-based newspapers
    - consultancy advice
    - specialized financial or other information
4. **Entertainment services.** These provide internet-based access to videos, movies, electronic games, or theme sites. This E-entertainment sector is expected to grow rapidly in the next few years, with a convergence of TV and internet-based technologies.
5. **Specialized services such as auctions.** Many different auction sites have appeared and these are discussed further in this lecture. It is not possible to discuss all the different eservices in this lecture and so we will briefly sample only a few examples for each category.

Web-Enabled Services

Web-enabled services include personal banking, stock trading, and education.

E-banking

Security First Network Bank (SFNB;)was the first internet bank. It provides most of the banking services on the web. Therefore, you can do your banking with your fingers instead of your feet. Looking at e-banking, we can distinguish between twp distinct models:

1. Pure cyber banks
2. Traditional banks that provide e-banking to complement their retail banking SFNB. is a pure cyber bank, while the homepage of Bank of America illustrates the second model.

While not all banks offer the full range of services on the internet, banks in both the mentioned groups offer a varied range of services including

1. personal banking
2. commercial banking for both small businesses and large corporations
3. financial services
4. loan application services
5. international trade including settlement instruments, foreign exchange transactions, etc.

There are significant advantages for both the individual or corporation as well as the bank in using e-banking. An individual doing personal banking on the internet can, amongst other things, pay bills, do account transfers, make queries on account balances, obtain statements, in some cases view images of checks, etc., and import transactions directly into home account management software.

The advantages to the banking institutions themselves include

1. reduction in the number of retail banking branches, saving rentals or ownership of the related properties.
2. reduction in staffing because of the reduction in paper processing as well as face-toface bank teller contact.
3. bringing about increase in the time the bank hangs on to the money before making the required transfers, leading to increase in interest received by the banks. These advantages are so significant that some banks offer customers a number of incentives to -switch to internet banking, such as free checks, reduced fees, increased deposit rates, etc.

E-stock trading and e-investing

Several companies such as E-Trade .Datek.on-line, American Express Financial Services, etc. allow you to trade stocks, bonds, mutual funds, etc. on the internet. These companies offer you to trade at a very small cost compared to discount brokers or full-service brokers. This has resulted

in these on-line trading companies grabbing an increasing market share. In response to this, discount brokers including Charles Schwab and full-service brokers have also moved to introduce internet trading of stocks.

The steps involved essentially are the following:

1. place a request to trade, say buy a stock
2. the system responds with current "on the web site" prices
3. the internet trader has to confirm this trade or cancel it Several companies allow one to create a simulated portfolio, which one watches over time without actually buying or selling the stocks in reality. An example of this can be found on the Smart Money site .

The major advantages to the person doing the trading are

1. the reduced cost;
2. the convenience of being able to trade anywhere in the world with internet access, e.g. while travelling; and
3. access to a wide variety of information on a number of sites.

In addition to actually allowing you to trade, these sites provide a considerable amount of information. The reduction in margins available to stockbrokers as a result of internet trading is beginning to have an effect on other more traditional forms of brokers. This has led to some traditional brokers also providing internet trading of stocks.

E-education

A number of e-universities are being spawned around the world. Again, three models can be seen:

1. Pure cyber universities, such as Jones International University
2. Traditional universities setting up new cyber vehicles for providing university education perhaps with other business partners. An example of this the Hong Kong CyberU. which was set by the Hong Kong Polytechnic University and Pacific Century Cyberwars.
3. Traditional universities offering courses themselves on the internet. There are a number of web-based technology tools for this purpose. An example is Web CT. A number of

so called "open universities" that previously provided distance learning have moved into providing an internet-based version of their courses. These traditional universities have a number of advantages. They can now reach a client base that is outside their catchment. They also expect to be able to deliver these courses at a reduced cost; however, the jury is still out on this. Another advantage a traditional university has on the internet over a new pure cyber university is that it has an established brand name. There are a variety of issues that need to be explored carefully when preparing to deliver educational material on the internet and these include the following:

1. Does one use a distance learning model where the student uses a PULL model to acquire the material?
2. Does one use a traditional lecture model using video streaming? This is a PUSH model whereby a teacher "pushes" the materials to the students.

The use of the 'internet for education opens up many possibilities, namely use of quizzes, tests to provide the student with instant feedback on his/her mastery of the materials, use of graphics and animation to explain concepts, particularly those that have a dynamic character to them. It is anticipated that the internet will not only lead to cyber universities of one kind or another but will also have a marked effect on teaching and learning in traditional universities. One among some of the innovations that are being explored is the joint teaching by two universities on different continents in order to enhance the learning experience.

Travel Services

Before the internet, one might have gone along to a travel agent in order to book one's travel requirements such as air tickets, train tickets, car hire, hotel, tours, etc. The travel agent would try his best to meet these requirements by providing information regarding schedules, pricing, promotions, as well as suggestions on changes to de itinerary. These bookings could be for individuals or corporations involving corporate rates, etc.

A large number of e-commerce sites have appeared, which address this precise market segment. These include trip.com travelweb.com, and priceline.com. These web sites work in exactly the same way. When a customer provides requirements, these sites do a search of their own

databases or send agents our _ explore other web sites and respond to the consumer. Amongst the requirement that the customer could specify is an acceptable price.

E-employment and e-jobs

There are several different kinds of services provided here, namely

1. sites where you can get advice on developing your resumes and can post your resumes on the web
2. recruiters who use the web site to post available jobs, such as Hot jobsorJobdirect
3. employers who list available jobs on the web sites

a. matchmaking facilities that search the internet for jobs for jobseekers based on a specification, such as

b. matchmaking facilities to search the internet for resumes that best fit a job description given by a prospective employer use of agents to do the search These approaches of using the internet for e-employment or ejobs avoid many of the costs and difficulties associated with traditional approaches to advertising, such as high cost, limited duration, and minimal information.

Others

In some areas, such as real estates e.g., the visualization '(3D' facilities provided on the web allow one to either

- show visualizations of buildings at the drawing board stage, or
- allow people distant from the physical site of building to actually visualize it

This area of matchmaking and brokering services is expected to grow greatly in the near future with e-commerce sites exploiting new market niches. This is also an area with the greatest likelihood of disinter mediation, and traditional agents or brokers will have to build new dimensions to their services in order to survive.

E-Entertainment

This is expected to be a growing area of e-commerce in the future. A number of companies are gaining access to or have purchased large inventories of movies or other entertainment material with the view of allowing people to download this on the web. Sites here vary from theme sites that use a small amount of interactive entertainment to promote their products, such as Disney, to others that provide games either for a fee or are free coupled together with advertising that pays

for the site. An important issue here is that the payments involved are relatively small for each transaction, and hence the use of micro payment techniques is likely to be of considerable importance here.

Electronic Commerce and Banking

"Banking is vital to a healthy economy. Banking as a business can be subdivided into five broad types: retail, domestic wholesale, international wholesale, investment, and trust. Of all these types, retail and investment banking are most affected by online technological innovations and are the ones that stand to profit most from electronic commerce. The role of electronic commerce in banking is multifaceted impacted by changes in technology, rapid deregulation of many parts of finance, the emergence of new banking institutions, and basic economic restructuring.

Given these environmental changes, banks are reassessing their cost and profit structures. Many banks feel that in order to be profitable they need to reduce operating expenses and maintain strict cost control. This philosophy is evident in the many mergers and acquisitions occurring in the banking industry. The challenge behind bank restructuring lies in adequately operational zing the notion of cost control.

Technology is the predominant solution for controlling costs.

Banks are

Increasingly help to reduce operating costs and still provide adequate customer service. Innovation and technology are becoming the key differentiators in the financial services business. Advance in networking, processing, and decision analytics have allowed institutions to lower service costs. Technology has also accelerated the pace of product innovation. For example, sophisticated arbitrage instruments like derivatives are changing the nature of investment banking.

The Securities and Exchange Commission's decision to allow Spring Street Brewery to trade its stock online may also fundamentally change investment banking by disinter mediating the traditional role of underwriting. Technology is enabling the development of new products and services. For example, technology is capable of replacing or expediting tedious financial exercises like check writing, filing taxes, and transferring funds. Although large businesses have automated these tasks, many small businesses and most households still do them manually.

These online capabilities increase the facility and speed of retail banking. However, new technology is a double-edged sword. While it enables banks to be more competitive through huge investments, it also enables new competition from fast-moving, non-banking firms.

Internet Commerce:-

The first stage

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

The Second stage

- An increasing no. of sites offer facilities to execute & settle the transaction.
- Delivery may be electronic or by home delivery depending on the goods and services.

The final stage

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

ELECTRONIC PAYMENT SYSTEM

Electronic Payment system 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 leaded the financial institutions to make use of electronic payments are:

1. Decreased technology cost
2. Reduced operational and processing cost

3. Increasing online commerce The Internet Payment Processing System

The participants in an online electronic payment transaction include the following:

The Customer: Customer in an e commerce may be the holder of a payment card such as credit card or debit card from an issuer

The issuer: The issuer means a financial institution such as bank that provides the customer with a payment card .The issuer is responsible for the card holder's debt payment.

The Merchant – The person or organizations that sells goods or services to the cardholder via a website is the merchant. The merchant that accepts payment cards must have an Internet Merchant account with the acquirer

The acquirer – is a financial institution that establishes an account with the merchant and processes payment card authorizations and payments. The acquirer provides authorization to the merchant that given card account is active and that the proposed purchase doesn't exceed the customer's credit limit. Also he provides electronic transfer of payments to the merchant's account, and is then reimbursed by the issuer via the transfer of electronic funds over a payment network.

The Processor – The Processor is a large data centre that processes credit card transactions and settles funds to merchants, connected to the merchant on behalf of an acquirer via a payment gateway.

Basic steps of an online payment The basic steps of an online payment transaction include the following:

- The customer places an order online by selecting items from the merchant's Website and sending the merchant a list. The merchant often replies with an order summary of the items, their price, a total, and an order number

- The customer places an order along with their credit card information and sends it to the business. The payment information is usually encrypted by an SSL pipeline set up between the customer's web browser and the merchant's web server.

Electronic Payment System

Various Online Payment Systems are as following

1. 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.eg. Digicash, Debit Cards, Electronic Purse etc.
- Post Paid Tokens – are used with fund transfer instructions between the buyer and seller. eg. Electronic Cheques, Credit card data etc.

2 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. The properties of Digital cash are:

• Must have a monetary value

• It must be backed by cash [currency], bank authorized credit or a bank certified cashier's check • Digital cash is based on cryptographic systems called "Digital Signatures" similar to the signatures used by banks on paper cheques to authenticate a customer.

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

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. Integration of the banking and the information technology industry has benefitted the consumers in many aspects with respect to time, cost and operational efficiency.

PREPAID AND POST-PAID PAYMENT SYSTEMS

Electronic payment systems are broadly classified in to prepaid and postpaid payment systems: A] Prepaid payment systems It provides a service that is paid prior to usage. Here the customer is allowed to spend only up to the amount that have pre determined into the account. This type of payment system

is highly useful to those customers who would like to control overspending. E.g. Prepaid debit cards or prepaid credit cards. Prepaid payment system is taken by the customer by depositing money with the credit given company. It can be deposited in the savings account or the current account. Once the money is deposited, the card is used as a regular credit card. It is very effective card as it doesn't put in to debt. Once the money is exhausted in the account, the credit card cannot be used. There is no interest charges related to this card.

Benefits of the pre□paid payment system

1. It is accepted at the entire merchant establishment worldwide according to the affiliation of the credit given company.

2. It can be used to withdraw cash from the ATMs

3. Reloadable anytime anywhere

4. It can be used to withdraw cash in any international currency

5. It is usually backed up by personal accident insurance cover 6. Customer has the facility to get online and track spending, check balance, change pin

B] Postpaid Payment System

This system is like a credit card used to make incremental purchases through the web site. As purchases are made, the accumulated debt on the postpaid credit instrument increase until a credit limit is reached, or until an arrangement has made to settle the debt such as monthly payment. Normally all credit cards are postpaid cards. The customer gets the eligibility of spending through the income statement and credit history produced before the credit card company. The customer gets a credit limit and a credit period by which the customer is supposed to pay back the money to the credit card company.

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Features of Postpaid payment system

- Global acceptance – accepted by all the merchant establishments according to the network set by the credit card company.

- **Balance transfer option** – It is possible to transfer outstanding funds from one card to other cards with low interest rates.

•**Revolver facility** – Customer can pay only a small amount of the total outstanding and revolve the rest for the payment of the next month.

• **Cash advance facility** – Customer can withdraw around 30% of the credit limit at any ATM connected to the credit card company

•**Tele draft** – These facilities are available at the door steps of the customer • Other services – Credit card can be used for railway tickets and airline ticket purchase

•**Convenience** – as the customer is not required to carry cash for any purchase

•**Easy availability** – holder can load prepaid credit cards at anytime they need.

E□Cash or Electronic cash

E□Cash or Electronic Cash is a new concept to execute cash payment using computers connected with network. E□cash is an electronic medium for making payments. The primary function of e□cash is to facilitate transactions on the Internet. Many of these transactions may be small in size and would not be cost efficient through other payment medium such as credit cards. Electronic money [also known as e□currency, e□money, electronic cash, electronic currency, digital money, digital cash or digital currency] refers to money or scrip which is exchanged only electronically. Typically, this involves the use of computer networks, the internet and digital stored value systems. Electronic Fund Transfer and direct Deposit are all examples of electronic money.

E□cash is a system of purchasing cash credits in relatively small amounts, storing the credits in our computer, and then spending them when making electronic purchases over the Internet. The e□cash is the creation of electronic money or tokens, usually by a bank, which buyers and sellers trade for goods and services. It consists of a token, which may be authenticated independently of the issuer. This is commonly achieved through the use of self□authenticating tokens or tamper proof hardware. It includes credit cards, smart cards, debit cards, electronic fund transfer etc.

An e□cash system must have the following properties: □

• Digital cash must have a monetary value. It must be backed by cash • Digital cash must be exchangeable.

• It should be storable and retrievable

• It should not be easy to copy or tamper with while it is being exchanged E□cash can be used for making or receiving payments between buyer and seller. The bank's server computer sends a secure

e□cash packet to the customer effect the network currency server of the bank is issuing a bank note with a serial number for a specified amount. The bank uses its private key to digitally sign such a bank note.

Electronic Cheque

E□cheques are a mode of electronic payments. Integration of the banking and the information technology industry has benefitted the customers in many aspects with respect to time, cost and operational efficiency. Cheque is the most widely accepted negotiable instrument to settle transactions in the world. Paper cheques provide consumers an important payments mechanism. This technology was developed by a consortium of Silicon Valley IT Researchers and merchant bankers and since then has been promoted by many of the financial bodies.

E□cheques work the same way as paper cheques and are a legally binding promise to pay. Electronic cheques are gathered by banks and cleared through existing banking channels, such as automated clearing houses. The advantages of Electronic cheques are :□

1. The online merchants could receive payments instantly
2. Similar to traditional cheques and eliminates need for customer education
3. Much faster
4. Less chance for cheque bouncing
5. Cost – effective manner

Credit Cards

They are the convenient method of making online payment. Credit cards work around the globe regardless of the location of country of the issuing bank. They also handle multiple currencies through a series of clearing houses. The credit card holders can purchase goods and services either offline or online without making immediate payment. Payment to the merchant's will be made by the customer's Bank. The credit card is a financial instrument which can be used more than once to borrow money or buy products and services on credit. It also contains a validity period and other important particulars. To accept a credit card for payment, we have to open a merchant account with our bank. A merchant account allows sellers to accept and process credit card transactions. In these transactions, the card number and transaction details are processed with no identification of the buyer. To implement the payments over the internet, the web merchant needs some form of secure and encrypted line using the Secure sockets Layer [SSL] that is standard on Netscape and Microsoft browsers. The merchant server needs an encryption key for the purpose.

Smart Card

A smart card is a plastic card about the size of a credit card, with an embedded microchip that can be loaded with data, used for telephone calling, electronic cash payments, and other applications and then periodically refreshed for additional use. A smart card, chip card, or integrated circuit card [ICC] is any pocket-sized card with embedded integrated circuits which can process data. The card connects to a reader with direct physical contact or with a remote contactless radio frequency interface. Smart card technology conforms to international standards and is available in a variety of form factors, including plastic cards, fobs, subscriber identification modules [SIMs] used in GSM Mobile phones and USB based tokens. These cards can be used to purchase goods and services. Smart cards are very useful to merchants and consumers to settle the transaction between them. Smart card provides a lot of benefits to consumers. It helps to manage expenditures more effectively, reduce the paper work and ability to access multiple services and the Internet. A multiple application card can support services like health care, travel and financial data access.

The benefits of smart cards for the consumer are the following:

a. Security – unauthorized access is prevented by a lock function

b. Convenience

c. Flexibility

d. Control

e. International use

f. Interest free loan

5. Debit Cards It is a popular method of making payment. Banks issue debit cards to their customers who have maintained an account in the balance with sufficient credit balance. Each time the customer makes a purchase, an equal amount of the purchase is debited in his account. The transaction works much like a credit card transaction. For eg. A customer gives an ATM card to the seller for the purchase. The merchant read the card through a transaction terminal and the customer enters his personal identification number. Then the terminal route the transaction through the ATM networks back to the customer's bank for authorization against customer's deposit account. The funds, are approved, are transferred from the customer's bank to the sellers' bank.

6. Electronic Purse Electronic Purse is a card with a microchip that can be used instead of cash and coins for everything from vending machines to public transportation. The Electronic Purse would consist

of micro chip embedded in a credit card, debit card, or stand-alone card to store value electronically. The card would replace cash and coins for small ticket purchases such as gasoline stations, pay phones, road/bridge tolls, video games, school cafeterias, fast food restaurants, convenience stores, and cash lanes at supermarkets. Cardholders can "reload" the microchip and control the amount of value stored in the card's memory. The Electronic Purse provides cardholders with the security and convenience of carrying less cash and coins, eliminating the need for exact change. Electronic purse is a term applied to a number of formats, each with different applications. Main security requirements for e-payment authorization – a payment must always be authorized by the payer – needs payer authentication (physical, PIN, or digital signature) – a payment may also need to be authorized by the bank data confidentiality and authenticity – transaction data should be authentic – external parties should not have access to data – some data need to be hidden even from participants of the transaction

• the merchant does not need to know customer account information

• the bank doesn't need to know what the customer bought availability and reliability – payment infrastructure should always be available – centralized systems should be designed with care

• critical components need replication and higher level of protection atomicity of transactions – all or nothing principle: either the whole transaction is executed successfully or the state of the system doesn't change

• in practice, transactions can be interrupted (e.g., due to communication failure)

• it must be possible to detect and recover from interruptions (e.g., to undo already executed steps) privacy (anonymity and untrace ability) – customers should be able to control how their personal data is used by the other parties – sometimes, the best way to ensure that personal data will not be misused is to hide it

• anonymity means that the customer hides her identity from the merchant

• untraceability means that not even the bank can keep track of which transactions the customer is engaged in Basic classification of e-payment systems

• pre-paid, pay-now, or pay-later – pre-paid: customer pays before the transaction (e.g., she buys electronic tokens, tickets,coins,.) – pay-now: the customer's account is checked and debited at the same time when the transaction takes place – pay-later (credit-based): customer pays after the transaction

• on-line or off-line – on-line: a third party (the bank) is involved in the transaction (e.g., it checks solvency of the user, double spending of a coin, …) in real-time – off-line: the bank is not involved in

real-time in the transactions Security issues on Electronic Payment System It is recommended that the clients instruct their banks to make the transfer of large payments directly to the agency's bank and not use Internet based payment systems. In common with all other electronic information processing systems, payment systems are prone to disruption by people exploiting the systems innate vulnerabilities. Those considering employing a payments system must decide whether to accept the consequent risks. Data in computers are more liable to destruction, fraud, error and misuse. Since payment information is so valuable its security is all the more important than other kinds of tangible assets in the organizational context.

Security refers to the policies, procedures and technical measures and to prevent unauthorized access, alteration, theft or physical damage to information systems. The basic objective of information security is the protection of interests of those involved in online business. All electronic information processing systems are vulnerable to denial of service attacks where the attacker employs any one of a variety of methods to prevent a client using a service a provider offers. Such attacks can have the effect of closing down a business. Some of the attacks were as follows:

• Development of a method of obtaining the goods or services without making the appropriate payment

• Compromise of clients' financial details credit card number, etc, which may result in the unauthorized transfer of funds and or political embarrassment by their publication

. • Illicit modification of the electronic goods offered by the merchant or of the descriptions of the other goods or services on the merchant server Other methods permitting the unauthorized transfer of funds.

Before the introduction of computers, people manage payment systems directly and valuable information of business organisations was kept safely in paper records and files. However, in e-commerce environment, information related to payments is transmitted through computers and as such it can easily be accessible to any number of people including outsiders. Hence, the data in computers are more liable to destruction, fraud, error, and misuse. Since payment information is so valuable its security is all the more important than other kinds of tangible assets in the organisational context. Therefore, it is highly essential to protect this valuable information against loss, damage or disclosure. Though only the positive change brought about by the e-payment systems is highlighted, we cannot ignore the disadvantages of electronic payment systems. One must be aware of the privacy and security concerns raised by electronic payment systems.

Security refers to the policies, procedures and technical measures and to prevent unauthorized access, alteration, theft or physical damage to information systems.

Information Security: The basic objective of information security is the protection of interest of those involved in online business. Thus, the main objectives of information security can be stated as follows.

1. availability Objective Information should be available and usable whenever it is required.

2. Confidentiality Objective: This objective state that information should be available to only those who have the right to access it.

3. Integrity Objectives: As per this objective, information should be protected from unauthorized alteration and modification and misuse. Solutions to security issues: There are numerous threats that appear on the Internet.

Solutions to Security Issues:

There are numerous threats that appear on the Internet or are spread through the Internet. Such threats include viruses, worms, Trojans, hackers, Denial of Service, sniffers and information theft. There are also internal threats from staff and backdoors. The software technologies that can be used to face such threats include the following. The solution for meeting each of the goals above includes two essential components:

1. Digital certificates for Web servers, to provide authentication, privacy and data integrity through encryption.

2. A secure online payment management system, to allow e-commerce Web sited to securely and automatically accept, process, and manage payments online. Along with these, a business firm can make use of technologies to build up a trusty infrastructure to take full advantage of this Internet.

A brief discussion on various methods generally used for managing the security issues given below. A. Anti-Virus Programs The first and most critical element of e-payment security system is antivirus software. If organisation does not have up-to-date antivirus software they are asking for trouble. It is reported that 300 new viruses appear each month and if we are not constantly protecting our system against this threat our computer will become infected with at least one virus. Antivirus software scans computers of signatures of a virus.

A virus signature is the unique part of that virus. It can be a file name, how the virus behaves or the size of the virus file itself. Good antivirus software will find viruses that have not yet infected your PC and eliminate the ones that have. Antivirus software can only protect our computer form virus trying to infect it via e-mail, CD- Rom, floppy disk, Word documents or other types of computer files. Antivirus software alone will not keep our computer cent percent safe. It is also necessary to use other methods like firewall software. As the organization's computer accesses the Internet then an anti-virus scanner should be installed.

There are different types of antivirus software now in use. It should be configured to perform analysis and be able to scan zipped files as well as other types of files. Anti-virus programms can be used on the server level itself. Such programs can scan the files that the server receives and looks for patterns that match known malicious software.

The anti-virus scanners are set to update them automatically. If any notification is received through such thing as radio or TV or the Internet, that there is a major problem with a virus or worm, then the anti-virus software can be updated manually at that time.

2. Firewalls

A Network Firewall is basically a secure gate between our organizations data and the Internet. The firewall is a combination of hardware and software. The firewall then filters traffic based on our requirements. Firewall security is designed to detect and resists unwanted attempts to penetrate our server security. All data traffic in bound to our server solution flows to the firewall. There, data packets are inspected and evaluated against a security policy that we define. All data packets are compared to our security policy before being forwarded or rejected by the firewall.

There are certain benefits that result for the server such as the protection of vulnerable services and restricted access to any vulnerable machines. The firewall server is to act as a gateway. It hides the existence of any of the internal machines from any hackers on the Internet. All access to the Internet will to through it and this means the Internet traffic will be able to watched closely, so any misuse could be noticed quickly.

Secure Socket Layer (SSL)

SSL allows traffic to be scrambled (or encrypted). The standard SSL developed by Netscape provides a high level of protection. The US government views encryption technology as munitions, so the only version of SSL available worldwide is the relatively weak 40-bit version. However, this version can protect against any casual attempt to decipher card details, as it take over an hour to crack one message.

Browsers that support this feature a dialogue ox, a padlock in the bottom task bar, or a blue key (like Netscape Navigator) to indicate that a secure session is in progress.

Secure Electronic Transaction (SET)

SET encrypts payment card transaction data and verifies that both parties in the transaction are genuine. SET, originally developed by Mastercard and Visa in collaboration with leading technology providers, has a large corporate backing and is perceived to be more secure as a result of its validation from card companies.

Public Key Software Infrastructure (PKI)

PKI is similar to a bank's night safe in that may public keys can be used to deposit items into the safe, but only one private key, belonging to the bank can make withdrawals.

Other Measures For secure online transactions, the site that hosts the account should follow strict security policies. If the passwords are susceptible to being hacked, it results in a serious financial loss. Banks or financial institutes, which maintain customer's personal information, cannot afford to expose it to hackers. There is a potential risk of our personal and account details being stolen. One of the most severe disadvantages of electronic payment systems is that of identity theft. The available security measures can prevent the sensitive information from being exposed. But it is important to use virus protection or firewalls for our computer. It is important to carry out money transactions over a secure server. There is a great risk involves in the theft or the loss of the smart cards. In case the cards fall in unsafe hands, there is a danger of the expenditure of our entire bank balance. There are measures to inform the concerned authorities about the loss of the card. But, the time between losing the card and informing the authorities is critical. Unauthorized users may carry transactions in our name during this period of time. Mostly, electronic cash is based on cryptographic systems. The transactions are encoded by means of numeric keys while the transaction details travel across the net. Though, electronic payments are resistant to forgery, these keys are vulnerable to attack.

Other measures to Security Issues

1. Anti□Virus Programs It is reported that 300 new viruses appear each month and if we are not constantly protecting our system against this threat our computer will become infected with at least one virus. Antivirus software scans computers for signatures of a virus. A virus signature is the unique part of that virus. It can be a file name, how the virus behaves or the size of the virus itself. Good antivirus software will find viruses that have not yet infected your PC and eliminate the ones that have. Antivirus program can be used on the server level itself. Such programs can scan the files that the server

receives and looks for patterns that match known malicious software. The antivirus scanners are set to update them automatically.

2. Standards for Security of the Products and systems Security products require special expertise to design, are complex to build, and are very vulnerable to bugs. The manufacturers guarantee is inadequate for security products unless supported by independent evaluation. Defense signals Directorate has set up an evaluation scheme, the Australasian Information Security Evaluation Programme [AISEP], to test IT security products against international standards. Products which satisfy the standards are certified by DSD and are normally listed on Evaluated Products List.

BIOMETRICS

Biometrics comprises methods for uniquely recognizing human based upon one or more intrinsic physical or behavioral traits. In computer science, in particular, biometrics is used as a form of identity access management and access control. It is also used to identify individuals in groups that are under surveillance. Biometrics characteristics can be divided into two main classes:

- Physiological are related to the shape of the Body. E.g. Fingerprint, face recognition, DNA, hand and palm geometry, iris recognition

- Behavioral are related to the behavior of a person. E.g. typing rhythm, gait, and voice. Biometrics is the science and technology of measuring and analyzing biological data. Biometrics is automated methods of recognizing a person based on a physiological or behavioral characteristic. To verify an individual's identity, biometric devices scan certain characteristics and compare them with a stored entry in a computer database.

In Information Technology biometrics refers to technologies for measuring and analyzing human physical and behavioral characteristics for authentication purposes. The simplicity that biometrics lends to secure verification of an individual provides greater opportunities for e-businesses to offer more products and services online. A biometric system can operate in the following two modes:

- **Verification** – A one to one comparison of a captured biometric with a stored template to verify that the individual is who he claims to be. Can be done in conjunction with a smart card, username or ID number.
- **Identification** – A one too many comparisons of the captured biometric against a biometric database in attempt to identify an unknown individual. The identification only succeeds in identifying the individual if the comparison of the biometric sample to a template in the database falls within a previously set threshold.

Types of Biometrics

There are two types of biometrics: behavioral and physical. Behavioral biometrics are generally used for verification while physical biometrics can be used for either identification or verification. The different types of biometrics under these includes:

1. Signature Computers can quantify, analyse and compare the different properties of signature to make signature recognition a viable biometric technology. Being based on things that are not visible [pen pressure and velocity], signature based biometric technology offers a distinct advantage over regular signature verification. A Signature based biometric system could mimic our current legally customary acceptance of a signature to simultaneously convey both identity and authority.

2. Keystroke Dynamics The rhythms with which one types at a keyboard are sufficiently distinctive to form the basis of the biometric technology known as keystroke dynamics. Key stroke dynamics unlike other biometric technologies is 100% software based, and it just requires a home computer to operate it.

3. **Hand geometry** This system requires the subject to place his right hand on a plate where it is photographically captured and measured. Made of 27 bones and a complex web of interconnected joints, muscles, and tendons, the human hand presents a sufficiently peculiar conformation of anatomical features to enable authentication. Airports, prisons, and factories have successfully employed hand geometry system.

4. **Finger Print** It is a forensic criminological technique, used to identify perpetrators by the fingerprints they leave behind them at crime scenes. In modern biometrics, the features of fingerprint called fingerprint minutiae, can be captured, analyzed, and compared electronically, with correlations drawn between a live sample and a reference sample, as with other biometric technologies.

5. Facial Recognition With good cameras and good lighting, a facial recognition system can sample faces from tremendous distances without the subject's knowledge or consent.

**********All the Best **********