B2C E-COMMERCE

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You can watch the video lectures of the author by clicking this link:
https://youtube.com/channel/UCiU898qMMc_3zXNspJbgZEw

B2C E-Commerce

- Business to consumer e-commerce involves direct relationship between the business and consumer over the internet.
- Consumer trade transactions are open to anyone with the internet connection. E-shopping can take place using a smart phone, computer at home, from work or at a cyber café.

E-Shop

- For e-commerce applications that are selling goods or services the internet application held on the server is an e-shop. E-Shop can be anywhere in the world and it is open 24 hours a day.
- The basic element of an e-shop is a webpage that offers or advertises the goods/services for sale and provides the means for a shopper/consumer to make the purchase.

FEATURES OF AN E-SHOP

Basic Features

1. **Visibility** – Getting the site noticed and the online customers visiting the store.
2. **Ease of use** – As the customer arrives at the site he should be able to get what he wants easily.
3. **Order processing** – Online orders have to be processed. This is done by linking to the back office systems.
4. **Payments** – Goods bought online have to be paid for electronically or in offline. E-shops facilitates both online and offline payments. They either register with an e-payment gateway or have their own wallets or provide COD facility.
5. **Security** – Online payments need to be secure and the customers have to be confident that they are secure. Hence through firewalls and encryption e-shops provides security to customer payment and personal details.
6. **Delivery systems** – With internet commerce there has to be system of home delivery except in case products (electronic material) which could be delivered online. E-shops therefore either have their own supply chain or outsource a logistic partner.

Other Features

1. **Customer Registration** – The option customer registration enables the customer to register his personal details like name, address, contact number and e-mail id. He could create an username and password which enables him to save time of entering the said personal details every time he visits the shop. Registrations help e-shops to notify customers of new product arrival, offers etc., thus enabling sales promotion.
2. **Dynamic and Personalised webpages** – The basic webpage is formatted in HTML. It could be changed by editing the source. A personalised webpage can be generated for a registered customer tailored to his/her needs. The dynamic webpages are linked to the database which stores the information about the customer and business.
3. **A Shopping Basket/ Shopping Cart** – As in case of conventional shopping in an e-shop the customer can select any number of products and place it in an electronic basket referred to as shopping cart. He can again review the selected items, return the unwanted to the shelves and make the payment for the desired goods in the basket. The other items would be available in the basket unless it goes out of stock which could be purchased on a future date.
4. **Additional Information** – The e-shops provide complete details of the product or service sold. There is possibility of comparison. It provides reviews and customer feedback about the products and related services which in turn would help the customers/visitors of e-shop to take a purchase decision.

5. **Community** – E-shops also creates a sense of community among its loyal customers. It categorises them into various groups viz., gold, diamond, silver etc., based on their purchase behaviour and provide them additional offers and discounts.
6. **Multiple payment options** – E-shops provide multiple payment options for the customers viz., credit card, debit card, net banking, UPI, wallets etc., as well as offline payment options viz., COD (Cash on Delivery), DD, cheque etc.
7. **Encryption** – As there is a feel of insecurity particularly towards online payments e-shops use encryption system to add security to the transmission of personal and payment details.
8. **Online Delivery** – Electronic products such as software, information and music can be delivered online. This facility saves the cost of distribution and customers' time.
9. **Loyalty Schemes** – Some e-shops introduce loyalty scheme. For every purchase made in an e-shop points are given. The accumulated points would be used as a basis for providing discount/offers in future.
10. **Online Help** – Internet can be effectively used for sale as well as after sales. E-shops provide online help to its customers regarding the product, it's usage etc.
11. **Shopping Mall** – E-shops provide a lot of shops under one roof with a pleasant shopping atmosphere. Like conventional malls e-shopping malls share facilities like shared advertising, Common facilities to link back office systems and process credit cards, e-cash facility, common customer files etc.

B2C TRADE CYCLE/ INTERNET SHOPPING AND THE TRADE CYCLE

- The stages in the Internet trade cycle being:

  SEARCH ⟹ ORDER ⟹ PAYMENT ⟹ DELIVERY ⟹ AFTERSALES

  (or)

  PRESALE ⟹ EXECUTION/SETTLEMENT ⟹ AFTERSALES

TRADE CYCLE IN INTERNET SHOPPING

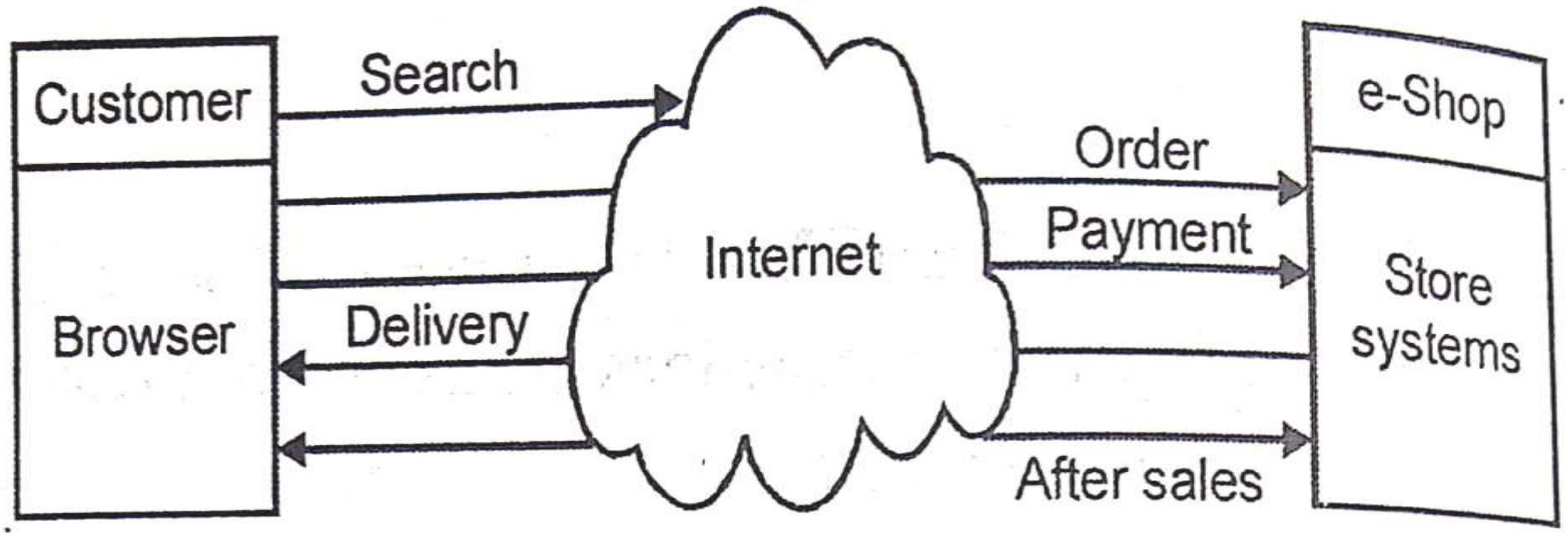

Figure: Trade cycle in Internet Shopping

1. SEARCH

To make a purchase a shopper has to find an appropriate vendor (e-shop). For an online shopper the different ways of finding the goods he wants are:

- Selecting a menu item or a button on the portal(the first page of the web, the user sees as he logs on).
- Using a search engine to find an appropriate internet e-store site (Eg.google.com, yahoo.com)
- Following a link to a store from another page that is advertising it. (hyperlink)
- Typing the URL of a page that has been featured on an advert or that is recommended by a friend.

Using the above said methods the user finds the e-shop that sells what he wants.

2. ORDER

On identifying the site the customer enters the site and starts shopping. Large e-shops have department/sections for each type of goods and there would be internal search engines and index, which helps the shopper to arrive at the section where the required item is sold.

Once the goods are found they are represented by a picture and description rather than a real thing.

Ordering of goods takes place by selecting the image and collection of goods is made in an e-shopping basket called shopping cart.

3. PAYMENT

Once the goods have been selected they have to be paid for. The different ways of paying for e-commerce transactions are:

- **Credit Cards** – The customer types the card number, name on card, expiry date, Card Verification Value (CVV),the One Time Password (OTP) received in the registered mobile number and billing address on the order form and the vendor can verify details and be confident of payment. Overdraft facility is allowed to credit card holders to the extent authorised by the bank.
- **Debit Cards** – Debit cards are used in the same way as credit cards but goods can be purchased only to the extent of cash available and overdraft is not allowed.
- **Net Banking** – Net banking is banking done online by accessing individuals bank account and carrying out financial transactions through the internet on smartphone, tablet or computer. It's quick, usually free and allows one to carry out a number of tasks such as paying bills and transferring money, without having to visit or call the bank.
- **UPI** – UPI is the Unified Payment Interface for smartphones and is a immediate real time payment system that helps in transfer of funds. (eg. Googlepay (xxx@oksbi, xxx@okicici etc.), Amazonpay (xxx@apl), Phonepe (xxx@ybl, xxx@ibl)

- **Wallet** - E-wallet is a type of pre-paid account in which a user can store his/her money for any future online transaction. An E-wallet is protected with a password. Also if e-wallets are linked to bank account payments could be done. (eg. Paytm, Paypal, mobiKwik. Jio money etc.)
- **Stored Value Cards** – The user will purchase a card with a prepaid value and use it for making payments online.
- **E-Cash** – Online equivalent of stored value card is electronic cash or network money. The money can be transferred from bank account into an e-cash account and used for paying e-commerce transactions.
- **Off-line payments** – Due to security issues in online payments, e-shops facilitate offline payments like Cash On Delivery (COD), Cheques, Demand Drafts etc.

4. DELIVERY

In an e-shop the goods have to be delivered to the customer. An e-commerce vendor needs a retail distribution network that matches the nature of goods, cost structure and expectation of customer. The delivery requirements differs as to the nature of product. For example, in case of book it can be sent by post from anywhere but fresh food needs a local distributor.

The delivery system for e-commerce purchases have to depend on the size and nature of the product, urgency and distance. Large e-shops maintain their own supply chain whereas others engage a logistic distribution partner for delivery of goods. The different delivery systems are:

i. **Post** – Suitable for small packets of non-perishable products.
ii. **Parcel** – Suitable for large packets/parcels of non-perishable products.
iii. **Courier** – Suitable for large packets/parcels of non-perishable products.
iv. **Own supply chain** – The large e-shops like Amazon, Flipkart etc., deliver the goods through their own supply chain.
v. **Local Delivery** - Suitable for perishable products.
vi. **Collect your own** – Customer to collect the products/services from the nearby retail outlets.
vii. **Electronic delivery** – Electronic materials like Software, e-books, songs, movies etc can be delivered online.
viii. **No Delivery** – Suitable for services like e-tickets, prepaid/postpaid broadband, voice, data services etc.

5. AFTER SALES

- E-Shops provide online support/help to the customers about the products/services, its' usage, address customer grievances and provide updation of software purchased online etc.

Difference between B2B and B2C E-commerce

Parameter	Business to Consumer	Business to Business
Meaning	Involves selling products/services to consumers.	Involves selling products/ services to other businesses
Emphasis	Product/Services	Long-term relationship
Target Audience	Any individual who wishes to buy the products and services listed by the platform	Decision-making people: Managers, sales representatives, brokers, etc.
Order Quantity	Small orders	Bulk orders
Price	Prices are consistent. However, discounts are offered from time to time	Prices vary from client to client, based on order quantity and frequency.
Checkout	Simple checkout with single click naturally flowing process	Chatbots, video chats, on-call assistance is required
Design	Attractive and catchy	Focus on information instead of attractiveness

Source: https://images.app.goo.gl/mTcUsLyHp1CKqPDP8

ECRM

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CRM – Customer Relationship Management

- Strategies, practices and technologies the company uses to mange and analyse customer interactions and data throughout the customer life cycle with the goal of improving business relationships with customers.

ECRM – Electronic Customer Relationship Management

- The ECRM or Electronic Customer Relationship Management encompasses all the CRM functions with use of network environment i.e., intranet, internet and extranet. Electronic CRM concerns all forms of managing relationships with customers making use of information technology.
- Major differences between CRM and ECRM are System interface, System overhead (client computers), Customization and personalization of information, System focus, System maintenance and modification.

NEED / BENIFITS

ECRM is becoming increasingly important to remain competitive. It is of vital importance due to the following:

- **Improve customer service and satisfaction.**
- **Personalise service, Optimising marketing and improving customer relationship by coordinating customer information/data.**
- **Reduce customer service cost through self-service features such as search functions, order tracking etc.**
- **To retain customers through a cordial relationship.**
- **Enhancing profitability by analysing customer information to optimise marketing efforts.**

OBJECTIVES OF ECRM

- To reduce marketing costs.
- To improve accuracy and relevancy.
- To increase customer satisfaction.
- To maintain customer retention.
- To enhance profitability.
- To provide good customer service.
- To discover new customers.
- To enhance customer loyalty.
- To help sales staff close deals faster.
- To simplify marketing and sales processes.
- To reduce the costs.
- To increase the goodwill and profitability by increasing customer satisfaction.
- To keep up with the customer interactions and faster redressal of grievances.

ECRM ARCHITECTURE

The ECRM Architecture comprises of:

i. **Sales Force Automation** – is a technique of using software to automate the business tasks of sales. It is an integrated application of ECRM used to streamline sales, inventory, forecasting, performance and analysis.

ii. **E-mail Management System** – is a specified field of communications management for managing high volumes of inbound electronic mail received by organisations.

iii. **Interactive Voice Response (IVR)** – is a technology that allows a computer to interact with human through the use of voice and DTMF (Dual Tone Multiple Frequencies) tones input via keyboard.

ECRM ARCHITECTURE

iv. **Knowledge Management** – Lets customers help themselves with a smarter knowledge base. Through help centers customers could find answers to their queries.

v. **Call Centers** – are offices in which large number of telephone calls are handled. It is used for receiving or transmitting a large volume of requests through telephone. It provides product support or provides answers to information enquiries of customers.

vi. **Instant Online Querying through Chat** – Online queries via WhatsApp, Facebook, twitter etc., are answered by chatbots and Customer Relationship executives.

ECRM APPLICATIONS

ECRM applications are varied and many. Every individual segment finds CRM's utility if they have – large customer base, several customer touch points and scope for more customer interactions.

- **Information Integration Application** – Consolidates customer data from different sources.
- **Customer Analysis Application** – Involves online data mining, analytics and statistics. Predicts and interprets customer behavior.
- **Real-time Decision Application** – Promotes information exchange between customer and the company. It coordinates and synchronises communication.
- **Personalised Messaging Application** – Helps in building customer profiles and enables customized product and service offerings based on the information integration application.

ECRM – MAJOR TRENDS

- In today's world customers interact with an organisation via multiple communication channels – the world wide web, call centers, field sales personnel, dealers and partner networks. Organisations have multiple line of business that interact with same customers. The ECRM system manages this with a central repository of customer records and providing a portal on each employees' computer system allowing access to customer information anytime. The major trends in ECRM are:

1. **Integrating data from multiple channels.**
2. **Handling high volume, velocity and variety of data.**
3. **Shift to cloud based CRM** – usage of various services available over the internet, referred to as the cloud.

4. **Social CRM** – usage of social networks like twitter, facebook etc to interact with customers.
5. **Mobile CRM** – mobility of customers could be easily found and services provide through getting access of their locations.
6. **CRM to XRM (Xtreme Relationship Management)** - An XRM solution utilizes a CRM platform to manage more than just relationships with clients; it can manage employees, processes, partners, assets, suppliers and just about anything else a company wants to keep track of
7. **CRM software systems with wearables** – wearables are devices worn by consumers to track their health and fitness information.
8. **Crowd sourcing** – Crowd sourcing is a process through which data collected and analysed through a group of unofficial and geographically dispersed participants.

ECRM IN INDIA – **Most sectors of the financial services in Indian Industry are using the below ECRM techniques to achieve a variety of outcomes.**

- **Automated Teller Machine** – Automated teller machine widely known as ATM is an electronic telecommunication device which enables customer to perform financial transactions viz., cash deposits, withdrawals, transfers etc. Also it provides them the balance in their bank accounts and the list of transactions.
- **Data Warehousing and Data Mining** – Databases are stored in a central system rather than on individual computers. Data mining is the process of analysing and summarising data into meaningful information.
- **Electronic Fund Transfer (EFT)** – Electronic fund transfer is the transfer of money from one bank account to another, either within a single financial institution or across multiple institutions, through computer-based systems and without the direct intervention of bank staff.
- **FAX** – Fax is the short name for facsimile. Fax is the telephonic transmission of scanned printed contents of both text and images, normally to a telephone number connected to a printer or other output device.

- **Mobile Banking** – Mobile banking refers to systems that allow customers of a financial institution to conduct a number of financial transactions through mobile device or tablet.
- **Online Banking (OLB)** – It is an electronic payment system that enables customers of a financial institution to conduct financial transactions on a website operated by the institution. Online banking is also referred to as virtual banking, internet banking and e-banking.
- **Telephone Banking** – Telephone banking is a service provided by the bank or financial institution , which enables customers to perform a range of financial transactions over the telephone, without the need to visit a bank's branch or ATM.
- **Telex** – Telex is a switched network of tele printers similar to telephone network for the purpose of sending text-based messages.

- **Internet** – Internet is a global system of interconnected computer networks. It is a network of networks that consists of millions of private, public, academic, business and Government networks of local to global scope, linked by a broad array of electronic, wireless, optical networking technologies.
- **Infinet** – Infinet is Indian Financial Network. It is a satellite based wide area network using VSAT (Very Small Aperture Terminal) technology setup by the RBI in June 1999. Major applications in operation on Infinet are e-mail, Electronic Clearing Services – Debit and Credit, Electronic Fund transfer, transmission of inter-city cheque realisation advices etc.
- **Electronic Clearing Services(ECS)** – ECS is an electronic mode of fund transfer from one bank account to another bank account. It can be used to pay bills and other charges such as telephone, electricity, water or for paying EMI (Equated Monthly Installments) on loans as well as SIP (Systematic Investment Plan) investments. It can also be used by corporate and institutions to make payments like distribution of dividends, interest, salary, pension etc.

Questions

1. What is B2C E-Commerce?
2. What is meant by an e-shop?
3. What is an electronic cart?
4. What do you mean by e-cash?
5. Give the meaning and usage of UPI.
6. What is e-cash?
7. What is CRM?
8. What do you mean by E-CRM?
9. What is data mining?
10. What is social CRM?
11. Describe in detail the features of an E-Shop.
12. Briefly explain the advantages of B2C e-commerce.
13. State the limitations of B2C E-Commerce.
14. Explain the process of Internet shopping.
15. State the significance of ECRM.
16. Point out the objectives of ECRM.
17. Briefly describe the ECRM Architecture.
18. Account for the ECRM Applications.
19. State the major trends in ECRM.
20. ECRM in India - Discuss.

ELECTRONIC DATA INTERCHANGE (EDI)

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EDI - INTRODUCTION

EDI is the electronic exchange of business documents in a standardised, computer-processable, universally accepted format between trading partners. It is the computer to computer exchange of business documents without the need for people and paper.

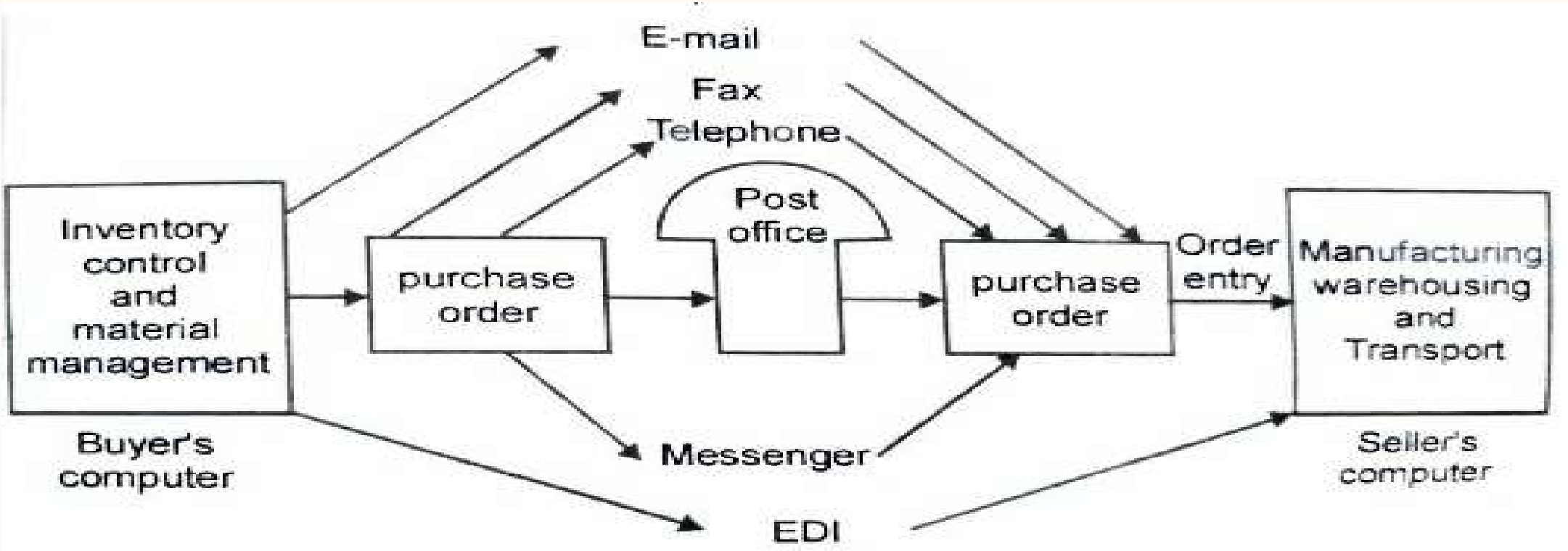

Figure: EDI vs traditional methods

Any company, or groups which uses EDI, are called Trading Partners. In EDI the computer applications of both the sender and the receiver referred to as Trading Partners (TP's) have to agree upon the format of the business document which is sent as a data file over an electronic messaging service. In EDI data are exchanged in standard predefined formats. Hence it is possible to exchange business documents between trading partners irrespective of the application/operating system/platform at the other end.

Eg. Suppliers accounts receivable software using Linux.

Customers accounts payable software using MacOS.

EDI messages can totally automate the procurement process between two trading partners. Once data is entered into the buyer's computer system and transmitted electronically the same data gets entered into the seller's computer without the need for re-keying or re-entry. EDI allows data to flow electronically between trading partners without the need for re-keying and between internal applications of each trading partner.

The repeated keying of identical information in the traditional paper based business communication faces problems like

- increased time
- low accuracy
- high labour charges and
- increased uncertainty.

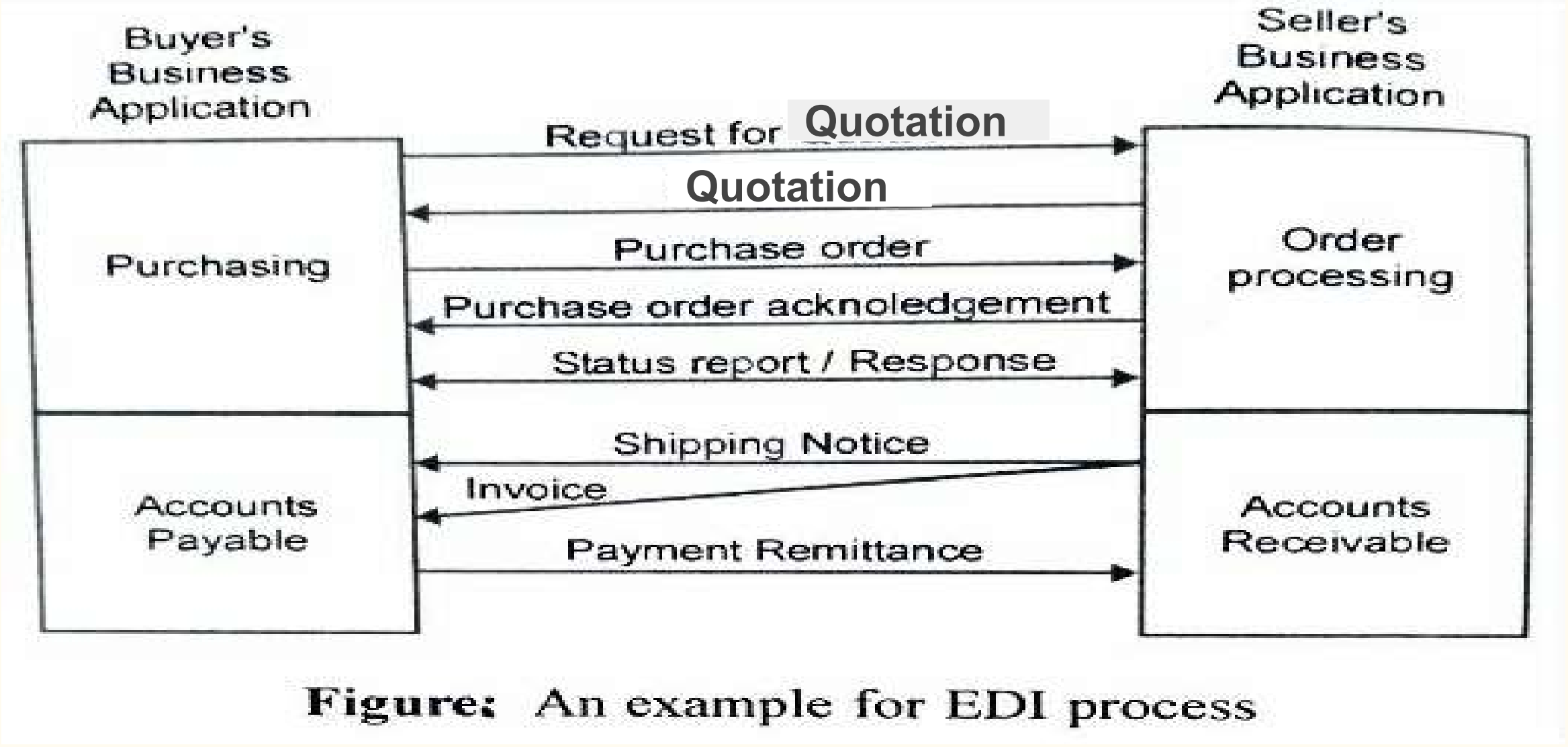

Figure: An example for EDI process

DIFFERENCE BETWEEN E-COMMERCE AND EDI

E-commerce and EDI differ. E-Commerce is an aspect of doing electronic business, person to person interaction or collaboration, money transfer, data sharing and exchange, website merchant systems etc. EDI is a subset of e-commerce. In EDI users can exchange business information in a standardized electronic form.

COMPONENTS OF EDI SYSTEMS

The three main components required to send or receive EDI messages are:

- EDI standards
- EDI software
- Third party networks for communication

1. **EDI STANDARDS**

EDI standards are basically data standards in which they lay down the syntax and semantics of the data being exchanged. Using EDI it becomes possible for a business application on the computer of one organization to communicate directly with the business application on the computer of another organization. This exchange has to be made independent of the hardware, software and operating platform of computers at both ends. To achieve this it was required to extract data from business application and transform it into a standard format and when this standard data was received at the destination it has to be delivered in the acceptable form of the recipient computer. The exchange of business documents in a commonly agreed structured format necessitated the development of EDI standards.

VARIABLE - LENGTH EDI STANDARDS

1.**TDCC/EDIA** - The Transportation Data Coordinating Committee now called Electronic Data Interchange Association developed EDI formats for transportation Industry.

2.**UCS** - The Uniform Code Council developed Uniform Communication Standard (UCS) for grocery industry.

3.**WINS** - Warehouse Information Network Standard was developed for warehousing industry.

4.**(ASC)X12-**American Standard Committee's X12 standards was developed for use by all American businesses.

5.**(UN)EDIFACT** - EDI For Administration Commerce and Transport Standard was announced in 1987 by United Nations for international EDI.

EDIFACT is undertaken by 2 international organizations.

- **ISO responsible for developing syntax, rules and data dictionary.**
- **United Nation Economic commission is concerned with its use, promotion and standardization.**

EDIFACT STRUCTURE -

- The **basic unit of communication** among EDI Trading Partners defined by EDIFACT is an **interchange**.
- An **interchange** consists of **functional groups of messages**.
- Each **functional group** may contain many **messages of the same type**.
- Every **message** consists of a **collection of segments.**
- Each **segment** has **data elements**.
- **Special delimiters are used as separators for segments, data elements**.

2. EDI SOFTWARE

EDI software consists of computer instructions that translate the information from unstructured, company-specific format to the structured EDI format and then communicate the EDI message. **Major functions of EDI software are:**

i. Data conversion

ii. Data formatting -

iii. Message communication

EDI software is available for mainframes, minicomputers and microcomputers. T**he requirements of EDI are:**

i. A computer

ii. A communication interface and

iii. Appropriate software.

EDI messages can be transferred using any File transfer Protocol (FTP). **EDI Translators / EDI translation Software translates business documents from company specific formats to standard format and vice-versa (also known as mapping).** The important concern while buying/choosing a translation Software is:

i.Flexibility

ii. Must handle multiple standards

iii.Easily upgradeable of different versions/release

3. COMMUNICATION OF EDI MESSAGES

Communication Service sends and receives transmission files to and from the trading partner either directly or by using third party service called VAN (Value Added Network). VANs provide users with a single point interface to the trading community.

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

1. **Internal Format File (IFF)** - contains a single document for one Trading partner and is for EDI's own use.
2. **External Format File (EFF) -** contains same data as the IFF but translated to a standard format.
3. **Transmission File** - Contains one or more document for the same Trading Partner.

Documents of same type → one functional group

Functional groups of one TP→ packaged into interchange set.

Interchange set → one or more functional groups of documents to same

sender/receiver.

EDI COMMUNICATION

EDI messages are communicated in the following manner:

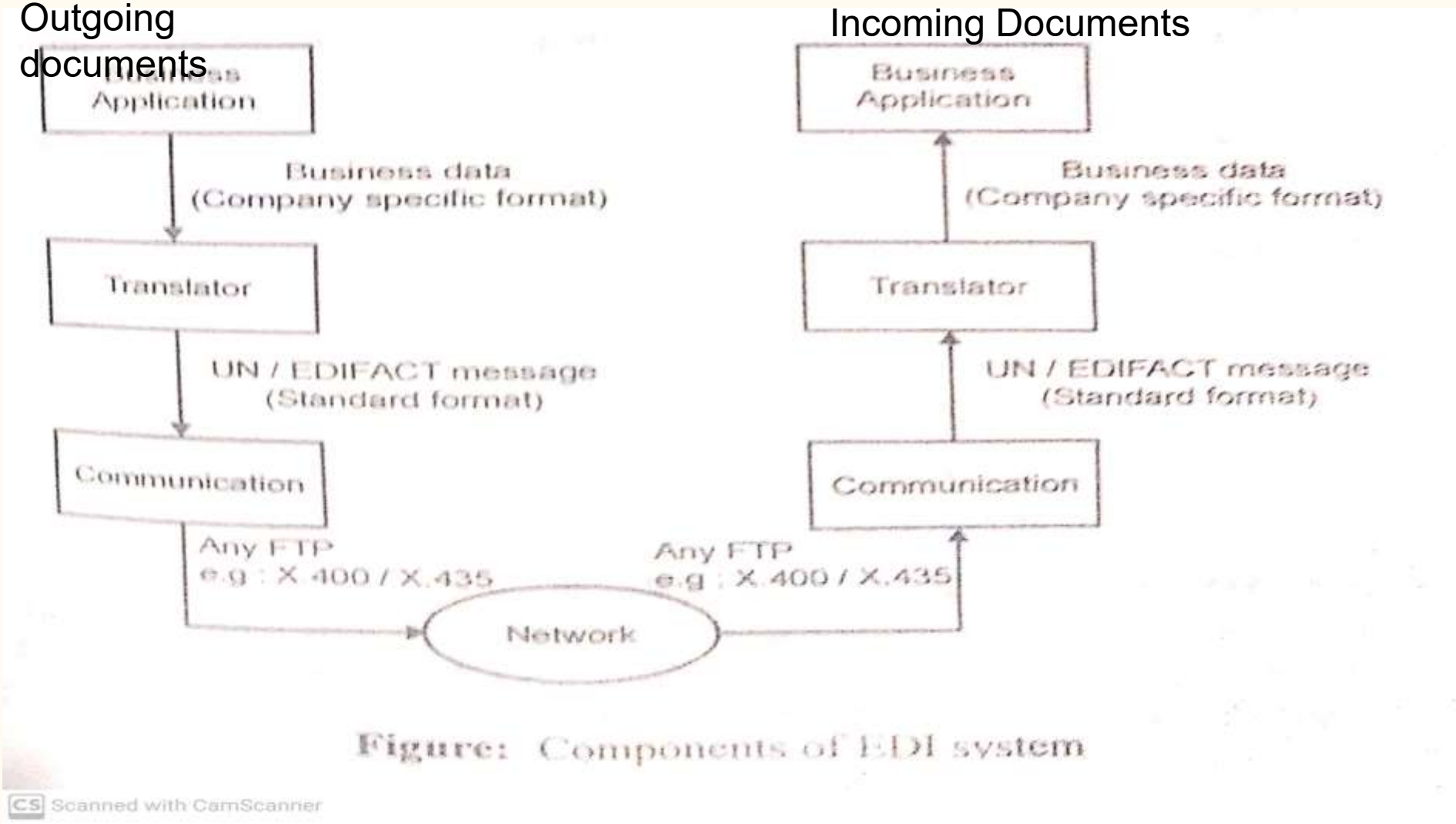

Figure: Components of EDI system

For Outgoing Documents

1.APPLICATION SERVICE

- The business application uses callable routines to send a document from the business application to Application Service.
- Now the document is in the form of IFF.
- The Application service sends the IFF to translation service.

2.TRANSLATION SERVICE

- The Translation service receives IFF from application service and converts it to EFF.
- The translation service combines one or more EFF's into a transmission file.
- The translation service now sends the transmission file to communication service.

3.COMMUNICATION SERVICE

- The communication service receives a transmission file from the translation service.
- Identifies the type of connection to be used for that Trading Partner and determines the gateway to use.
- The communication service sends the transmission file to the trading partner.

For Incoming Documents

1.COMMUNICATION SERVICE

- The communication service receives the transmission file from the Trading Partner.
- The communication service sends the transmission file to the translation service.

2.TRANSLATION SERVICE

- The Translation service receives documents in form of transmission files from communication service.
- Separates transmission files and creates EFF.
- Translates EFF to IFF.
- Sends IFF to application service.

3.APPLICATION SERVICE

- Application service receives an IFF from Translation service.
- The application service makes data in IFF available in database so that the business application using callable interface can fetch the document.

EDI - COSTS AND BENEFITS

On implementing EDI computers electronically exchange business documents with each other, ideally without human intervention. This reduces the operating costs, administrative errors and delivery delays. The benefits accruing from EDI implementation can be classified into direct benefits and long-term strategic benefits.

DIRECT BENEFITS

1. REDUCED DATA ENTRY ERRORS - As EDI involves less human intervention and since no rekeying of data is required there is less possibility of data entry errors.

2. REDUCED PROCESSING/CYCLE TIME/TURNAROUND TIME - EDI messages passes from one computer to another in a standard, universally acceptable format between trading partners. This eliminates a lot of intermediaries and order-processing time is highly reduced.

3. AVAILABILITY OF DATA IN ELECTRONIC FORMAT - Data in EDI is in electronic form. So, it is easy to share data within and between organisations. E.g. purchase department can evaluate suppliers and marketing department can evaluate customers.

4. REDUCED PAPERWORK - The entire EDI process can be handled without using a single paper. As per Paperwork Reduction Act the electronic form is said as a valid document as long as its origin can be proved.

5. REDUCED COST - Time is money, therefore saving in time as a result of EDI results in cost savings. Though the initial cost of implementing EDI is high, it results in savings in future due to reduction in time, paperwork, labour etc. Cost of processing EDI documents is much smaller than that of paper documents.

6. REDUCED INVENTORY AND BETTER PLANNING - As a result of EDI the processing time is highly reduced. So a company need not hold large amount of stock. Just-in-time inventory could be maintained.

7. IMPROVED CUSTOMER SERVICE - The quick transfer of business documents and marked decrease in errors allow orders to be fulfilled faster.

STRATEGIC BENEFITS

1. STANDARD MEANS OF COMMUNICATION - EDI is based on standard formats. This has reduced ambiguity and results in clear and efficient communication.

2. COMPETITIVE ADVANTAGE - Company's having implemented EDI has a competitive advantage especially when dealing with government agencies and large corporations. Large retailers discourage doing business with people who do not have EDI.

3. BETTER BUSINESS PROCESSES - Compared to traditional methods of exchanging business documents EDI is found to be the best way to communicate between trading partners. This enhances Supply Chain Management.

4. ACCURATE SALES FORECASTING AND BUSINESS PLANNING - Availability of information at the right place in the right time results in more accurate sales forecast and better business planning.

LIMITATIONS OF EDI

- **Expensive**

  Setting up and maintenance cost of EDI is expensive in the year of installation.
- **Initial setting up and adaptation is time consuming**

  Initial cost to setup EDI is time consuming. Also the resistance to change to complete automation may affect its implementation in the beginning.
- **EDI standard changes**

  The business process depends on EDI's standard format. Change in standard format would affect the business process as it has to be changed accordingly.

- **Security threats**

  An EDI enabled system needs electronic protection from viruses, hacking, malware and other frauds.
- **Increased training cost**

  Staff needs training in order to run EDI enabled software. Investment has to be done in training.
- **Backup**

  Proper backup should be maintained as the whole data depends on EDI. In case of any crash in the EDI system, proper backup is essential due to which extra cost may be incurred.
- **Trade limits**

  Many organization prefer doing business with business with people who use EDI. Hence the businesses which doesn't use EDI in their organisations are affected.

EDI APPLICATIONS

1. **Manufacturing Sector** - In manufacturing sector EDI is used for communicating with suppliers, customers and other trading partners.
2. **Retail Sector** - In the retail sector EDI is used to streamline deliveries and helps in maintaining just-in-time inventory.
3. **Service Sector** - In service sector EDI replaces labour intensive activities. For eg. payment & transfer of funds electronically, transfer of services electronically etc.
4. **Global Trade** - EDI enables trading with partners around the world with ease and opens up opportunities in the international market. It enables smooth transfer of data across borders.

Questions

1. Define EDI.
2. What is EDIFACT?
3. What do you mean by IFF?
4. What is meant by mapping in EDI?
5. State the meaning of EFF.
6. Account for the EDI Applications.
7. What is the work of communication service in EDI?
8. What is meant by EDI standard? Account for the different EDI standards.
9. Briefly explain EDI software.
10. Enumerate EDI Communication.
11. Describe the components of EDI.
12. Explain the Cost and Benefits of EDI.
13. Account for the drawbacks in implementing EDI.

E – PAYMENTS

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UNIT – IV

E- payments- Types – Traditional Payment system – Modern payment system – Steps in E- Payment – payment Security – E- Cash.

E – PAYMENTS

PAYMENTS:

- ❖Payment system is a devices that facilitates transfer of value between a payer and a beneficiary.
- ❖Two way flow of payment in exchange of goods and services.
- ❖ Made in form of Cash, Cheque, DD, Credit Cards, sDebit Cards and also by electronic instructions to banker (Payment made on behalf of customer)

E- PAYMENT :

E-payment is based on electronic financial network, and communication technologies as a means to realize circulation and payment by making use of binary data stored in the bank computer systems. Payment made in form of electronic system . Such as, Electronic fund Transfer (EFT), Electronic Clearing Services (ECS), Real Time Gross Settlement (RTGS).

Electronic fund Transfer (EFT) :

❖Any person who wants to make a payment to another one / Company etc. can approach up to their bank and make payment or give instruction to transfer fund directly from his account to receiver/ beneficiary Account.

❖Complete bank details of receiver to be furnished at the time of payment then transfer of amount reaches the beneficiary account correctly and faster. RBI is the Service provider for EFT

Electronic Clearing Services (ECS) :

❖ Retail payment system which can be used for bulk payment/ receipts.

❖ similarly individual payment of a repetitive nature and of smaller amount .

❖ ECS is for companies and govt. department to make / receive huge volumes of payment rather than for fund transfers by individuals.

- ECS – Credit : to make bulk payment to Individuals.

Company / entity make payment from its bank A/c to a no. of recipients by direct credit to their bank A/c

ECS – Debit : to receive bulk Payment from individuals.

Mostly used by utility companies versus Telephone Co. Electricity Co. etc. to receive the bill payment directly from the bank A/c of their customers

Real Time Gross Settlement (RTGS):

The term real-time gross settlement (RTGS) refers to a funds transfer system that allows for the instantaneous transfer of money or securities. RGTS is the continuous process of settling payments on an individual order basis without netting debits with credits across the books of a central bank. Once completed, real-time gross settlement payments are final and irrevocable. In most countries, the systems are managed and run by their central banks.

➢Real-time gross settlement is the continuous process of settling interbank payments on an individual order basis across the books of a central bank.

➢This system's process is opposed to netting debits with credits at the end of the day.

➢Real-time gross settlement is generally employed for large-value interbank funds transfers.

➢RTGS systems are increasingly used by central banks worldwide and can help minimize the risks related to high-value payment settlements among financial institutions.

How RTGS : Works

When you hear the term real-time, it means the settlement happens as soon as it is received. So, in simpler terms, the transaction settles in the receiving bank immediately after it is transferred from the sending bank. Gross settlement means transactions are handled and settled individually, so multiple transactions aren't bunched or grouped together. This is the basis of a real-time gross settlement system.

An RTGS system is generally used for large-value interbank funds transfers operated and organized by a country's central bank. These transfers often require immediate and complete clearing. As mentioned above, once transactions are settled, they cannot be reversed.

KIOSK Banking Technology :

Kiosk banking was introduced by the Reserve Bank of India(RBI) to facilitate primary banking services to the poor and low-income group localities at a reasonable cost without the need for visiting the bank. KIOSK is '**K**ommunikasjon **I**ntegrert **O**ffentlig **S**ervice **K**ontor'.

It is an initiative to benefit the poor section of the society who usually are daily wage earners, who cannot maintain a minimum balance in bank accounts, who cannot travel long distances to avail banking facilities since it's difficult to find banks next door in villages and remote areas.

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Features of Kiosk Banking

Kiosk banking is a recent development in banking technology after the ATMs; it provides numerous additional features. Several features which distinguish a kiosk banking outlet from an Automated Teller Machine (ATM) are described below:

- **Account Inquiries**: Kiosk banking provides for making cheque book request, checking account balance and printing mini statement.
- **Customer Support Tools**: The customer can clarify queries from help desk agent through video conferencing.
- **MIS Reporting**: It leads to minimising of bank's workload by facilitating the creation of the customer's database and MIS reports.
- **Cheque Deposit Facility**: It has made cheque depositing easier for banks.
- **Internet Banking**: It provides for net banking facility to the consumer, like online transactions.
- **Marketing Tool**: Situated in a high traffic area, a kiosk banking outlet attracts customers due to increased visibility.
- **Customer Service Point (CSP)**

Customer Service Point is a small booth or a counter, set up either individually or in a shop in remote areas or villages of the country where there are very few banks. It is partnered with the respective private, public or co-operative bank to ensure necessary banking services to the poor people.

- **Kiosk Machine**

A kiosk machine is a self-operated banking system facilitating automatic usage for performing various cash as well as non-cash transactions like money transfer, printing account statements, cheque book request, bill payments, resolving queries, etc.It is simultaneously known as 'Touch-screen banking'.

- A kiosk banking machine has numerous technical features which distinguish it from the traditional banking system. Some of these features are a keyboard with trackball, barcode scanner, cash accepter, touch and non-touch display, video camera, integrated full-page thermal printer and integrated speaker.

- **No-Frills Bank Account**

A no-frills account is a zero balance account which is opened by poor and low-income group customers. It can be opened at a kiosk branch associated with a particular bank branch, to provide accessible banking solution to such customers

Services Offered Through Kiosk Banking

Kiosk banking outlets provide a wide range of cash and non-cash transaction services, unlike ATM, which is only viable for cash transactions. Following are the various services which a CSP and a kiosk machine offer to its customers:

- **Account Opening**: It is necessary to open a no-frills account to operate under kiosk banking.
- **Fund Transfer**: Kiosk banking makes it easy to transfer money from one bank account to another at minimal or no charges applied.
- **Cash Deposit**: The customer can deposit cash into a savings account through kiosk banking.
- **Cash Withdrawal**: The account holder can withdraw a sum only by being physically present and using his thumb impressions.
- **Passbook Entries**: Like in regular banks, the kiosk banking outlet also makes the passbook entries.
- **Cheque Clearance**: The customer can deposit the cheque in such kiosk branches to be encashed.
- **RTGS and NEFT**: Payments through Real Time Gross Settlement (RTGS) and National Electronic Fund Transfer (NEFT) are possible at kiosk branches.
- **Print Statements**: The account holder can view the account statement and can even get it printed at a kiosk branch.
- **Issue Cheque Book**: Kiosk banking provides the facility of getting a new cheque book issued.
- **Modify Beneficiary Details**: The customer can change the account beneficiary details as for when required at a kiosk banking outlet.
- **Loan Facility**: The account holder can apply for a loan against their time deposits through kiosk banking.
- **General-purpose Credit Card (GCC)/Kisan Credit Card (KCC)**: To increase the purchasing power of the weaker section of the society, kiosk banking outlets issue the GCC and KCC.

Credit Card: The most popular form of payment for e-commerce transactions is through credit cards. It is simple to use; the customer has to just enter their credit card number and date of expiry in the appropriate area on the seller's web page. To improve the security system, increased security measures, such as the use of a card verification number (CVN), have been introduced to on-line credit card payments. The CVN system helps detect fraud by comparing the CVN number with the cardholder's information.

Debit Card : Debit cards are the second largest e-commerce payment medium in India. Customers who want to spend online within their financial limits prefer to pay with their Debit cards. With the debit card, the customer can only pay for purchased goods with the money that is already there in his/her bank account as opposed to the credit card where the amounts that the buyer spends are billed to him/her and payments are made at the end of the billing period.

Smart Card : It is a plastic card embedded with a microprocessor that has the customer's personal information stored in it and can be loaded with funds to make online transactions and instant payment of bills. The money that is loaded in the smart card reduces as per the usage by the customer and has to be reloaded from his/her bank account

Charge Card : A charge card is a type of electronic payment card that charges no interest but requires the user to pay their balance in full upon receipt of the statement ,usually on a monthly basis. Charge cards are offered by a limited number of issuers. They can include an uncapped spending limit with generous reward benefits for the cardholder.

E-Wallet is a prepaid account that allows the customer to store multiple credit cards, debit card and bank account numbers in a secure environment. This eliminates the need to key in account information every time while making payments. Once the customer has registered and created E-Wallet profile, he/she can make payments faster.

Mobile Payment : One of the latest ways of making online payments are through mobile phones. Instead of using a credit card or cash, all the customer has to do is send a payment request to his/her service provider via text message; the customer's mobile account or credit card is charged for the purchase. To set up the mobile payment system, the customer just has to download a software from his/her service provider's website and then link the credit card or mobile billing information to the software.

ELECTRONIC CASH (E-CASH)

It's similar to regular cash, e-cash enables transactions between customers without the need for banks or other third parties. When used, e-cash is transferred directly and immediately to the participating merchants and vending machines. Electronic cash is a secure and convenient alternative to bills and coins. This payment system complements credit, debit, and charge cards and adds additional convenience and control to everyday customer cash transactions.

E-cash usually operates on a smart card, which includes an embedded microprocessor chip. The microprocessor chip stores cash value and the security features that make electronic transactions secure. Mondex, a subsidiary of MasterCard (Mondex Canada Association) is a good example of e-cash.

E-cash is transferred directly from the customer's desktop to the merchant's site. Therefore, e-cash transactions usually require no remote authorization or personal identification number (PIN) codes at the point of sale. E-cash can be transferred over a telephone line or over the Web. The microprocessor chip embedded onto the card keeps track of the e-cash transactions. Using e-cash the customer has two options: a stand-alone card containing e-cash or a combination card that incorporates both e-cash and debit.

How a typical e-cash system works: A customer or merchant signs up with one of the participating banks or financial institutions. The customer receives specific software to install on his or her computer. The software allows the customer to download "electronic coins" to his or her desktop. The software manages the electronic coins. The initial purchase of coins is charged against the customer's bank account or against a credit card. When buying goods or services from a web site that accepts e-cash, the customer simply clicks the "Pay with e-cash" button. The merchant's software generates a payment request, describing the item(s) purchased, price, and the time and date. The customer can then accept or reject this request. When the customer accepts the payment request, the software residing on the customer's desktop subtracts the payment amount from the balance and creates a payment that is sent to the bank or the financial institution of the merchant, and then is deposited to the merchant's account. The attractive feature of the entire process is its turnaround time which is a few seconds. The merchant is notified and in turn ships the goods.

E-Money : Transactions refer to situation where payment is done over the network and the amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient, and saves a lot of time.

Online payments done via credit cards, debit cards, or smart cards are examples of e-money transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant have to sign up with the bank or company issuing e-cash.

Features of E- payment :

- It is supported by computer technologies. It realizes storage, payment and circulation.
- Multiple functions are integrated together, including deposit, loan and non-cash settlement.
- It is widely applied to areas such as production, exchange, distribution and consumption.
- It us simple, secure, fast and reliable.
- It is usually accomplished through exclusive network for banks.

Traditional Payment System
Vs
Electronic Payment System

Traditional Payment System

- Traditional payment is realized through physical circulation such as cash circulation, bill transfer and bank exchange.
- Traditional payment is operated in a relatively closed system.
- Traditional payment uses traditional communication media.

Electronic Payment System

- E-payment introduces digital circulation to realize information transmission, so all means of e-payment are digitalized.
- The working environment of e-payment is based on an open system platform i.e. internet.
- E-payment uses most advanced communication means, such as the internet and extranet.

Traditional Payment System
Vs
Electronic Payment System

Traditional Payment System

- Traditional payment does not have such a high requirement.
- The cost is even less than one percent of that of the traditional way.

Electronic Payment System

- E-payment has a very high requirement for both hardware and software facilities, generally including online terminals, relevant software and some other supporting facilities
- E-payment enjoys advantages for it is convenient, fast, efficient and economic. As long as the user has a computer connecting to the internet, he will be able to stay indoors and complete the whole payment within a very short time.

Payment Security :

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions −

- **Confidentiality** − Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.
- **Integrity** − Information should not be altered during its transmission over the network.
- **Availability** − Information should be available wherever and whenever required within a time limit specified.
- **Authenticity** − There should be a mechanism to authenticate a user before giving him/her an access to the required information
- **Non-Repudiability** − It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.
- **Encryption** − Information should be encrypted and decrypted only by an authorized user.
- **Auditability** − Data should be recorded in such a way that it can be audited for integrity requirements.

Measures to ensure Security

- **Encryption** − It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and only the specified receiver can decrypt the data using the same or a different secret code.
- **Digital Signature** − Digital signature ensures the authenticity of the information. A digital signature is an e-signature authenticated through encryption and password.
- **Security Certificates** − Security certificate is a unique digital id used to verify the identity of an individual website or user.

An E-payment System typically involves the following steps:-

- **Registration:-**

  This step involves the registration of the payer and the payee with the issuer and acquirer respectively. Most e- payments designed require respectively. Most electronic payments designed require registration of payers and payees with their corresponding banks so that there is a link between their identities and their accounts held at the bank.

- **Invoicing:-**

  In this step, the payee obtains an invoice for payment from the payee. This is accomplished by either browsing and selecting products for purchase from the merchant's (Payee's) website in case of purchases made through the internet or obtaining an electronic invoice using other electronic communication medium like e-mail. The importance of this phase is that, it sets the mandatory and optional data variables that should be included in a payment protocol.

- **Payment Selection and Processing:-**

  In this step the payer selects type of payment, (card based, e-cash, e-cheque, etc.) based on the type of payment the payee accepts. Based on the selection, the payer then sends the relevant payment details like account number, unique identifiers of the payer to the payee along with accepted amount based on the invoice.

- **Payment Authorization and Confirmation:-**

  In this step, the acquirer on receiving payment details from the payee authorizes the payment and issues a receipt containing the success or failure of the payment to the payee. The payee based on the message may also issue a receipt of payment to the payer.

Questions

1. Explain briefly the features of e- payment.
2. State the uses of E- payment.
3. Write a Short note on a) Credit card b) Smart Card c) Debit Card
4. Write a note on : a) E-Wallet b) Kiosk Banking c) RTGS d) Charge Card
5. Discuss the various types of e – payment system.
6. Explain E- Cash and How it Works ?
7. Distinguish between traditional payment and modern payment.
8. Briefly explain the steps involved in the process of E- Payment System
9. Describe the precautionary measures taken for security in E- payment System.