

1.1 Driving the Electronic Commerce Revolution:-

E-commerce (E-c) or Electronic Commerce is the process of buying and selling goods and services electronically involving transactions using the internet, networks and other digital technologies.

E-business:- E-business is the use of the internet and digital technology to execute all the business processes in the enterprise. It includes e-commerce as well as processes for the internal management of the firm and for coordination with suppliers and other business partners.

Difference betⁿ E-Commerce and E-Business Activities:-

E-commerce is only a part of E-business that deals with the buying and selling of goods and services over the internet. It also encompasses with the activities supporting those marketing transactions such as:

- | | | |
|-----------------|----------------|------------------------|
| (i) Advertising | (ii) Marketing | (iii) Customer Support |
| (iv) Security | (v) Delivery | (vi) Payment |

The systems and technologies used are transforming firms' relationships with customers, employees, suppliers and logistics partners into digital relationships using networks and the internet enabled by or based upon digital networks that we use the terms electronic business and electronic commerce.

E-Government:- Refers to the application of the internet and networking technologies to digitally enable government and public sector agencies' relationships with citizens, business and other arms of the government.

Introduction to Electronic Commerce (EC):-

A simple definition of e-commerce is: A transaction of buying or selling online, as per Wikipedia, several technologies are included in E-commerce are as under:

- Mobile Commerce
- Electronic Funds Transfer
- Supply Chain Management
- Internet Marketing
- Online Transaction Processing
- Electronic Data Interchange (EDI)
- Inventory Management Systems
- Automated Data Collection System

- Electronic Commerce typically uses the world wide web for
 - the transaction life cycle along with other technologies.
 - other technologies like email.

Electronic Commerce business would employ the following:-

- Online shopping websites (for retail sales direct to customers)
- Online market places Provision and Participation
- Business to business (Buying and Selling)
- Gathering/using demographic data
- B2B EDD
- Marketing to Prospective and established customers
- Engaging in Pre-tail
- online financial exchanges

* E Commerce (EC) is electronically mediated information exchanges between an organisation and its external stakeholders. E-commerce is the process of shopping, buying and selling goods, services online. It ranges from purchasing influence to ordering and payment settlement.

Electronic Business:-

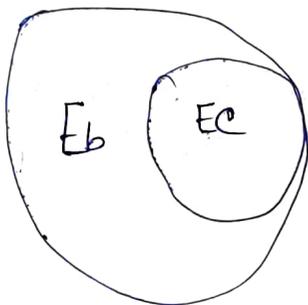
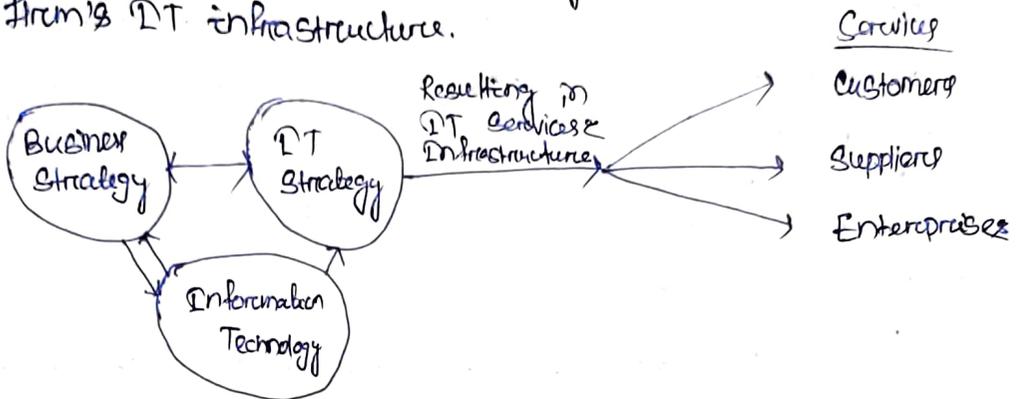
This includes a much wider range of business processes such as:

- Supply Chain Management (SCM)
- Electronic Order Processing
- Customer Relationship Management (CRM)
- E-business Processes, therefore can help companies to operate more effectively and efficiently.

E-Business is E-commerce (+) wider range of business processes, such as SCM, Electronic Order Processing, CRM, E-business Processes. It is a broader term that encompasses other common terms such as e-commerce and e-tailing.

Relationship of E-C & E-B with MIS:-

In the Modern Days even the smallest of firms, the information systems department is the formal organisation unit and is responsible for information technology services. IS is responsible for maintaining the hardware, software, data storage and networks that comprise the firm's IT infrastructure.



Eb - Electronic Business

Ec - Electronic Commerce

EBusiness refers to the systems and technologies which are responsible for transforming firm's relationships with:

- Customers
- Employees
- Suppliers
- Logistic Partners

* Electronic Business is the administration of conducting business via the Internet. It is buying and selling of goods and services along with providing technical or customer support through the Internet. It is the application of Information and Communication Technologies (ICT) in support of all the activities in business.

It is also for digital relationships using networks and the Internet. So much business (E-b) and Electronic Commerce (E-c). Electronic business is the use of digital technology and the Internet to execute the major business processes in the enterprise. The activities of internal management of the firm and for coordination

With suppliers and other business partners are the subject of electronic business. This includes electronic commerce or e-commerce (which is a subset of electronic business or e-business).

* E-commerce deals only with the buying and selling of goods, information and services over the Internet. It is also encompasses activities supporting those market transactions, such as advertising, marketing, customer support, security, delivery and payment.

(a) The narrower definition of e-commerce is:

(i) Doing business online or

(ii) Buying products and services through web storefronts.

* Products could be trading of any physical products such as tractors, cars, trucks etc.

* Services could be distant education, online medical consultation with an hospital outside the country or arranging excursion etc.

E-business:- It is a business conduction exclusively through an electronic format. It is derived from the phrase electronic commerce.

(b) It is buying, selling, marketing, ~~selling~~ servicing, delivery, payment of products, services and information over the internet, intranets, extranets and other networks, between an inter-networked enterprise and its prospects, customers, suppliers and other business partners.

E-commerce can be considered as:

(i) A strategy

(ii) A technology

(iii) A system

(iv) A separate business

(v) A sales approach

(vi) A mystery

(vii) A combination of some of

(i) to (iv) indicated above.

Meaning of Electronic Commerce:-

E-commerce involves:- Multimedia, delivering, Product information, customer support on the world wide web, Internet security and payment mechanism (to ensure completion of delivery and payment process) are all covered under electronic commerce.

Ex:- Electronic commerce could include:

- Use of multimedia web pages of product catalogs on the Internet
- Access of inventory databases by large customers through the extranet
- Use by sales representative to access customer records through corporate intranet

Electronic Commerce Covers:-

- online Point-of-Sale and Transaction Processing
- Web Retailing and Wholesaling
- Electronic Data Interchange (EDI)
- Electronic Funds Transfer (EFT)
- Electronic Banking
- Interactive Marketing and
- Supply chain Management (SCM)

Functions of Electronic Commerce:-

The four functions of e-commerce are:-

- Communication
- Process management
- Service management and
- Transaction capabilities

The communication function is aimed at the delivery of information and / or documents to facilitate business transactions. E-mail is an excellent example of this.

- * The Process management function covers the automation and improvements of business processes. The best example of this would be networking two computers together so that they can share and transfer data rather than have a person to take data from one computer to another.
- * Service management function is the application of technology to improve the quality of service. A good example of this function is the Federal Express website. It permits customers to track shipments and the schedule picks up 24 hours a day with a worldwide network without having to talk to a service representative. Customer service is greatly enhanced due to the site's capabilities.
- * Transaction capabilities provides the ability to buy/sell on the Internet or some other online services. The retail websites of Amazon.com and REI offer good examples of the transaction capabilities of E-commerce.

Advantages of Electronic Commerce:-

- Distances do not matter in carrying out trade; you can reach the world any time you want. This helps companies to have a cheap contract with supplier via Internet or via an EDI system.
- * Unlike a brick and mortar store an online store works 24 hours a day, 7 days a week, 365 days a year, round the clock (click and mortar). Just click and get the items/services fast.
- * Compared with a retail outlet or new office the cost of setting up an e-commerce website is very low; can be integrated straight into your infrastructure with very little overheads or outlay.
- * More flexibility in a website to add and remove a product or products than in catalogues or brochures.

Main Activities of Electronic Commerce:-

To satisfy customer needs, goods are increased and the trade becomes manifold. The functions included are:

- Buying and Selling of Products
- Shipping of Products and
- Producing financial statements.

E-business Models:-

<u>Business Model</u>	<u>Description</u>	<u>Examples</u>
B2C	Business to Consumer/customer Sells, Products or services directly to consumers.	Amazon.com; autobytel.com, Wikipedia, zara.com, Alibaba, Helté Tesca
B2B	Business to Business Sells, Products or services to other business or brings multiple buyers and sellers together in a central market place.	Chendex, Metal Gate, Houghton, Shop2gether, CATX, LinkedIn, Street.com, Den 2 Broadstreet, Revise Markets, Hoot Street, Sales Force, GIE.
B2G	Business to Government Business selling to local State, and federal agencies.	eFederal.gov.com
C2C	Consumer to Consumer Consumers sell directly to other consumers.	eBay, American-Boat Listing, Amazon India Rocket Trade online.com.
C2B	Consumer to Business Consumers name own price which business accept or decline.	Priceline.com, Reverseauction.com, PayPal, Google wallet, Walker

Business to Business (B2B):- is the portion of Internet market that affect transactions between business operations and their partners in marketing, sales, development, manufacturing and support.

Business-to-business Applications

B2B involves both electronic business marketplaces and direct market links between businesses.

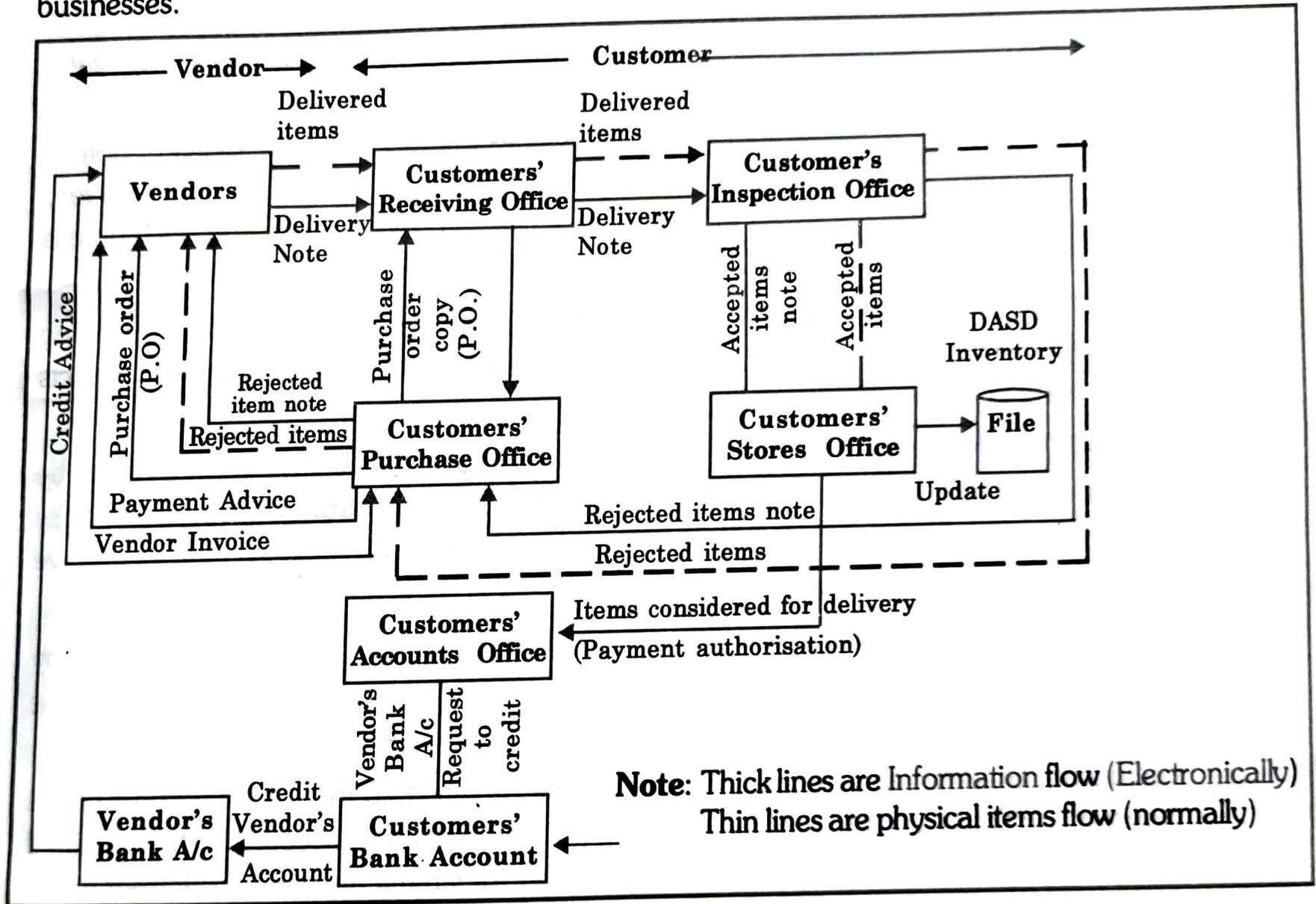
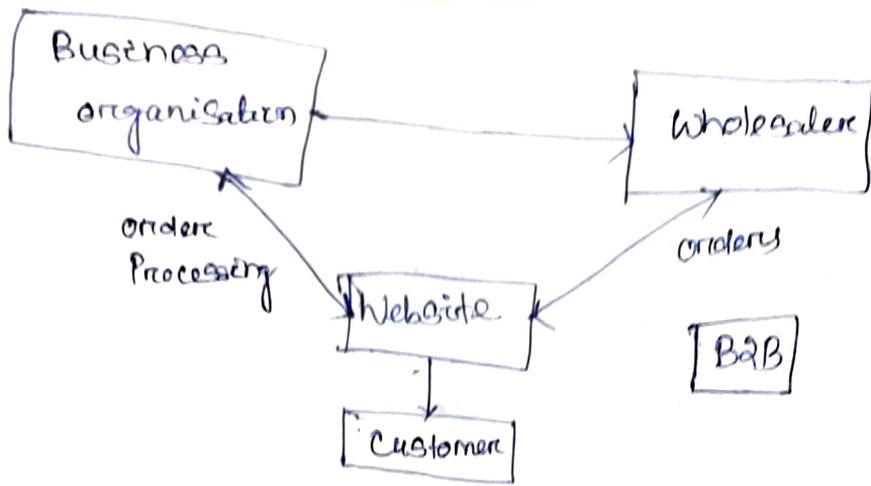


Figure 1.13: B2B E-Commerce Diagram



Consumer to Consumer (C2C)

Consumers sell directly to other consumers via online classified ads and auctions or by calling Personal Services or expertise online.

Consumer to Business (C2B):-

Also called a 'reverse auction' or 'demand collection' model. enables buyers to announce their own price, often binding for a specific good and service generally demand website collects the demand bids and then offers the bid to participating sellers.

Traditional vs. E-commerce Comparison

Work Involved

	<u>Traditional</u>	<u>E-commerce</u>
1. Process of transaction	Manual	Automatic
2. Duration of working	Limited time	24x7x365
3. Inspection possibilities	Physically goods can be inspected by physical touch/vision before use	No inspection, only by figure/sketch etc.
4. Scope of business	Limited in a particular area	Worldwide contact
5. Marketing	one way	one to one
6. Customer interaction	Direct face to face	Through computer interface
7. Exchange of info	No uniform platform	Uniform platform avail.
8. Focus	Supply side	Demand side

B2C Electronic Commerce

Business-to-consumer/customer (B2C) customers have access to the Internet. They operate from the homes or workplaces and wish to purchase items sold by the shops. For convenience sake, one can shop at any time from the house and items will be delivered to the house. B2C is the most familiar form of e-business between and within businesses account for a large share of commercial activity. An Internet uses Internet technology to allow employees to view and use internet websites that are not accessible to the outside world.

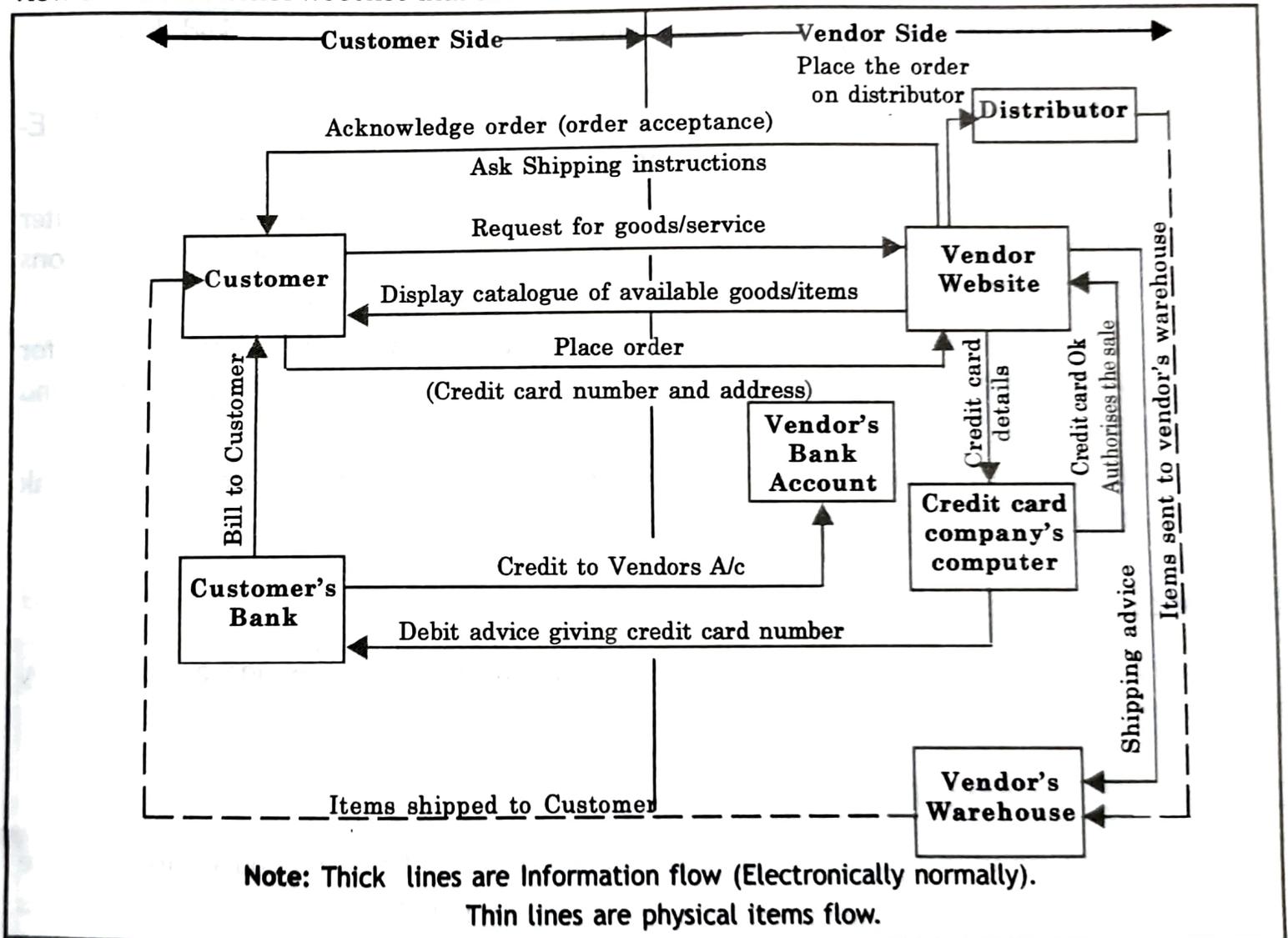


Figure 1.14: Business-to-Customer E-Commerce

9. Business Relationship	Linear	End to end
10. Payment	Cash, Cheque, Credit Card	Credit & EFT
11. Goods delivery	Immediate; on the spot	Takes little time
12. People's opinion	Safe	Not safe, just a myth

Electronic Data Interchange (EDI)

EDI is the direct computer-to-computer exchange between two organisations of standard business transaction documents such as invoices, bill of lading and purchase orders. It saves money and time because transactions can be transmitted from one information system to another through a telecommunications network, eliminating the printing and handling of paper at one end and the inputting of data at the other.

Def:- EDI is the controlled transfer of data between businesses and organisations via established security standards. EDI consists of standardised electronic message formats for business documents such as requests for quotations, purchase orders, purchase ^{change} orders, bills of lading, receiving advices and invoices.

Applications of EDI:-

EDI is used in manufacturing, shipping, warehousing, utilities, pharmaceuticals, construction, petroleum, metals, banking, insurance, retailing, government, healthcare and textiles among others.

Advantages:-

- Improvements in overall quality
- Inventory reduction
- Provides better information for management decision-making. It provides accurate information and audit trails for transactions.
- EDI is used for sending invoices, purchase orders, custom documents, shipping notices and other types of business documents in a fast and expensive method.

- Saves time and manpower by avoiding the need to rekey data.
- Data arrives much faster than it could be by mail and there is an automatic acknowledgement.

Portals:-

Portal is a major visiting centre for internet users. It is a single web based interface to content data; aggregated and customized, based on the user's profile, subscription and access.

functions :-

- (1) Content Presentation
- (2) Collaboration
- (3) User Profiling
- (4) Personalisation

Features of Portal:-

- (I) Organise content by building a corporate topic hierarchy.
- (II) Create search capability by buying a high end search server and building a corporate wide search site.
- (III) Create a single length by buying a light weight Directory Access Protocol compatible directory server and creating an intranet Portal Security model.
- (IV) Organise for easy publishing by creating publishing standards and developing document templates.
- (V) Facilitate document consent procedure by identifying common approval processes and hosting online where possible.
- (VI) Create personal views for users by discerning user preferences and logging them into the directory.
- (VII) Deliver dynamic content by buying software and building dynamic personal pages.

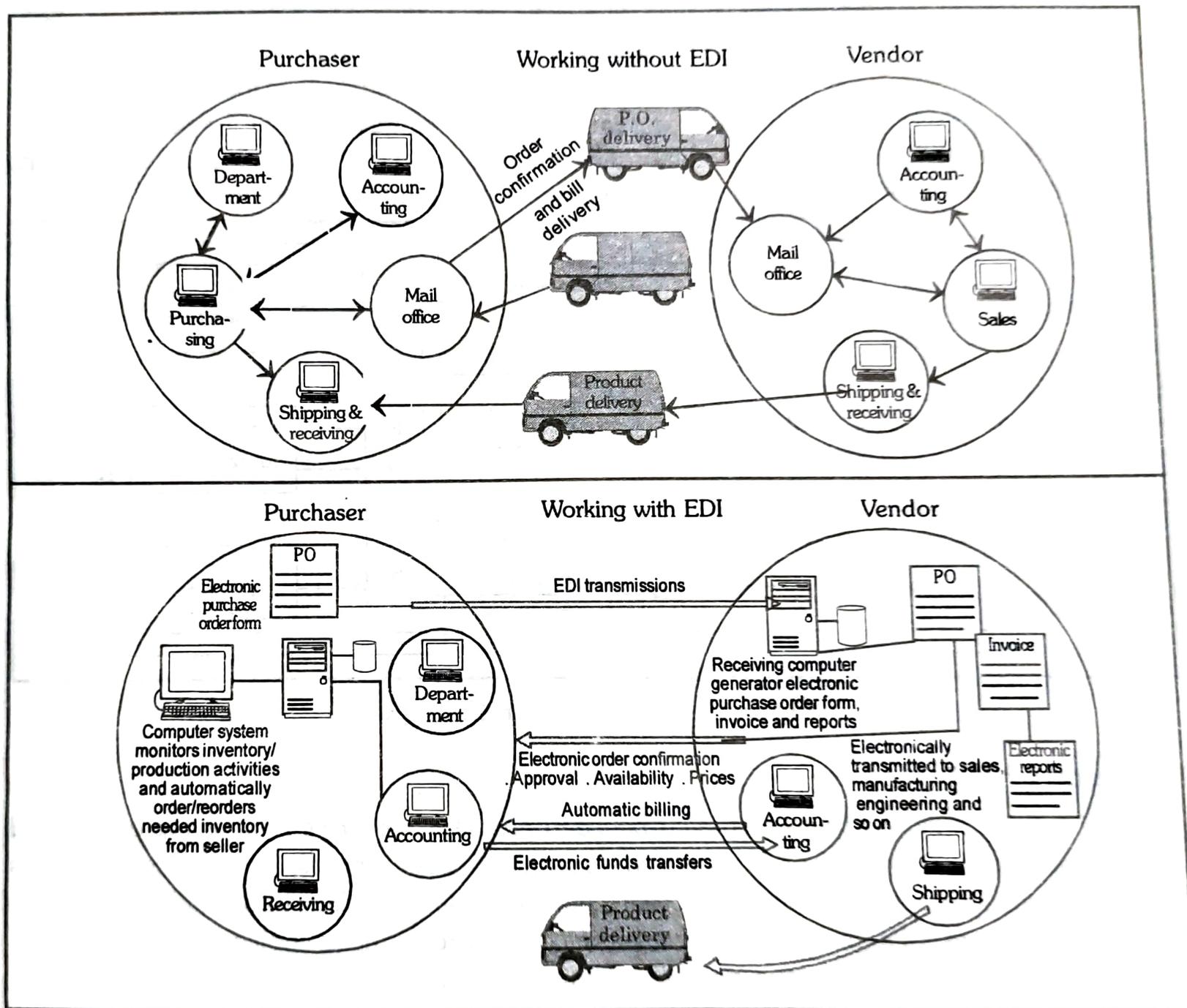


Figure 1.17: An Illustration of How EDI would Improve and benefit Business Relationships among Organisations

OSI Model:-

The OSI (Open System Interconnection) model is a model based on a proposal developed by the International Standards Organisation (ISO) in 1984. This model deals with open systems. An open system is one that is open to communicating with other systems using non-proprietary standards. The OSI Model has 7 separate layers. Each defines a segment of the process of moving information across a network.

- Application Layer - Provides network services to users and user applications including file transfer. Provides user interfaces with the systems.
- Presentation layer - Data transfer betⁿ different systems. Encryption, Decryption, Compression is done.
- Session Layer - Establishing, Maintaining, Terminating each logical session between end users.
- Transport Layer - Controls data transfer for the complete transmission path, from the sending point to the receiving point.
- Network Layer :- Controls the routing of data and messages through the channels of a network.
- Data Link Layer - Controls grouping data into blocks and transferring blocks (frames) from one point in the network to another.
- Physical Layer - Handles voltage electrical pulses, connectors and switches so that data can be transmitted over network media.

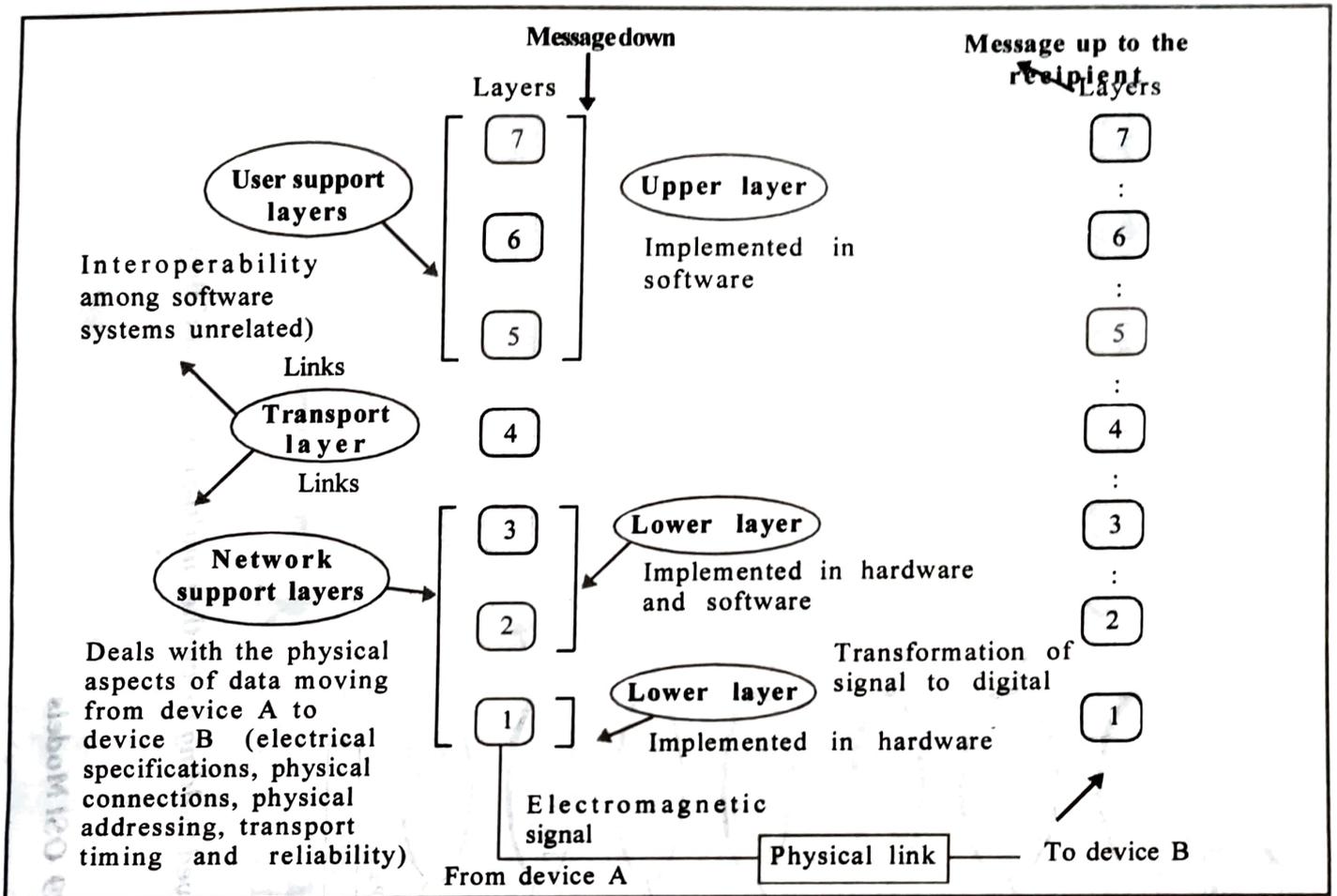


Figure 1.27 Organisation of the Layers

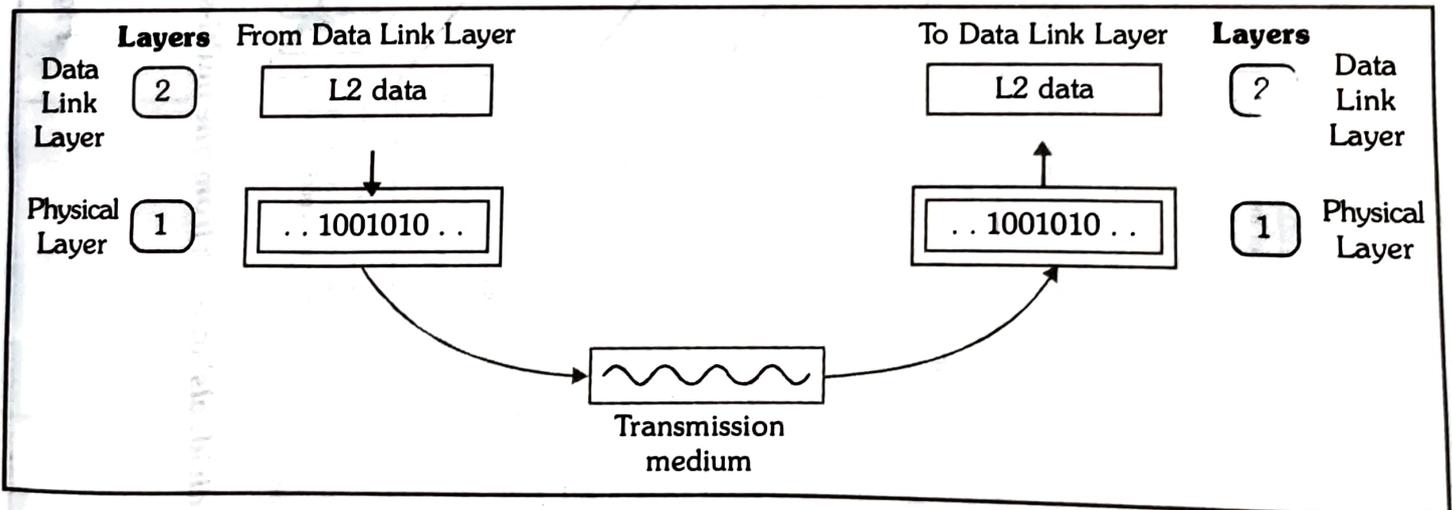
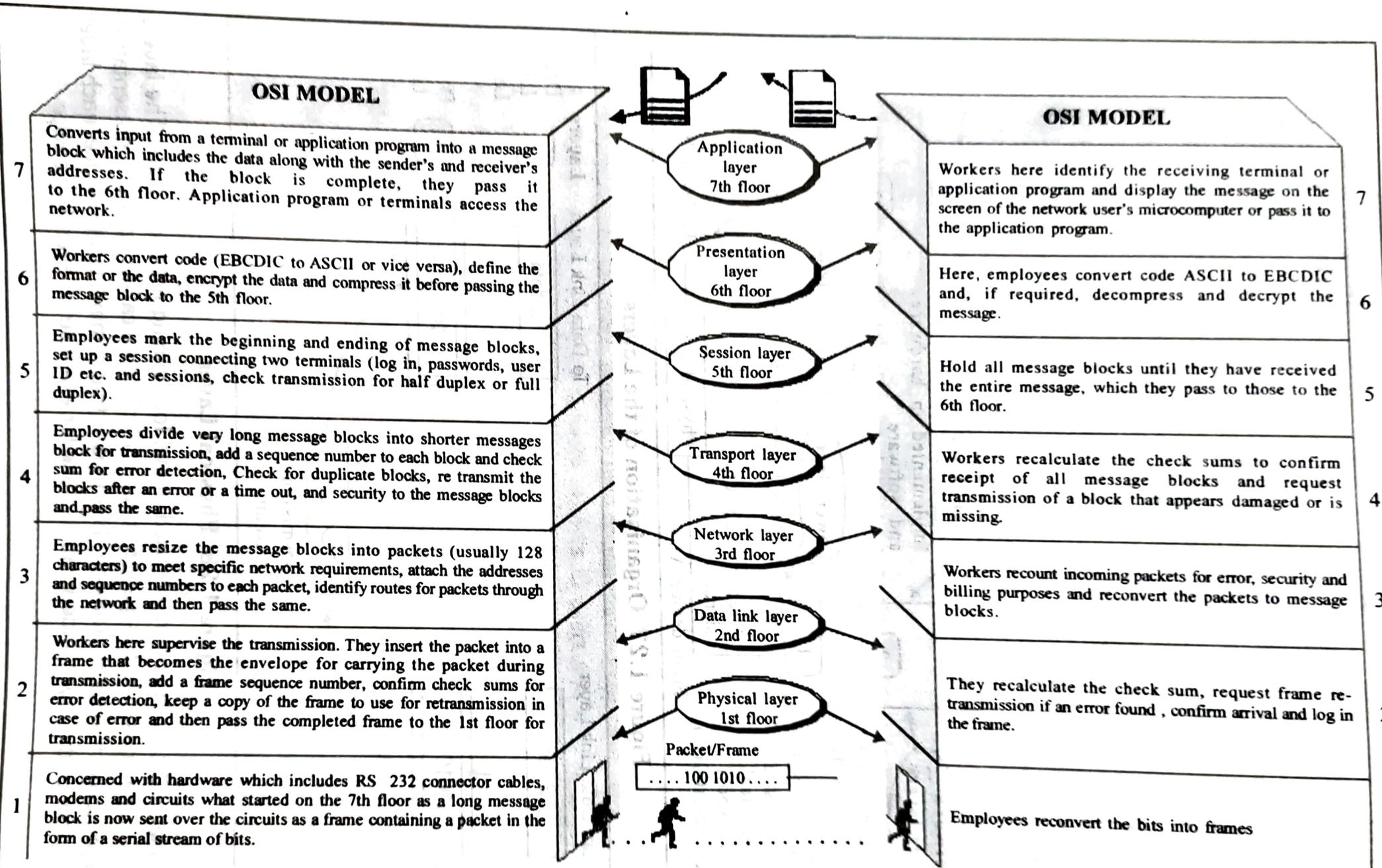


Figure 1.28 Physical Layer



(Individuals' moving from one multi-storeyed building to another multi-storeyed building)

Fig. 1.29 OSI Models

XML :- It is a document (only a richer, more flexible HTML).
Thinking of XML as a document allows you to see how it can be used for presentation of data which are detailed and useful for the most browsers use.

XML Database Management Systems (XDBMS) are designed to work well with XML.

XML languages and its associated terms are many :-

- extensible Resource Identifier (XRI)
- extensible Stylesheet Language (XSL)
- XML Path Language (XPath)
- XSL Formatting objects (XSL-FO)
- XSL Transformations (XSLT)
- DINC XML
- Regular Language description for XML (RELAX)
- RELAXNG
- Voice XML
- XForms
- XML Linking Language (XLink)
 - XML Base
 - XML Pointer language
 - XML Namespaces
 - XML Query
- XML Schema

Data Warehousing :-

Data warehouse stores data from current and earlier years that has been extracted from various operational databases of an organisation for business analysis, market research, decision support and data mining applications.

- * Data warehouses are subdivided into Data Marts which hold specific subsets of data from the warehouse.
- * A major use of data warehouse is data mining. Data mining are large pools of data to find patterns and rules that can be used to guide decision-making and predict future behaviour.
- OLAP (Online Analytical Processing or ~~Multidimensional~~ Multidimensional Analysis) supports much more complex requests for information such as compare sales of a product relative to plan by quarter and sales region for the past 2 years. OLAP together with query oriented data analysis users need to have a good idea regarding the information sought.
- Data Mining is more discovery driven which provides insight into the corporate data that cannot be obtained with OLAP by finding hidden patterns and relationships in large databases and inferring rules.
The types of information obtainable from data mining include:
 - Association
 - Classification
 - Sequences
 - Clusters
 - Forecast
- Predictive Analysis uses data mining techniques and assumptions about future conditions to predict outcomes of events. e.g. In India, Tupperware Corporation for integrating Product Sales data:

Bharati Airtel, India uses a data warehouse and data mining to know customer loyalty to increase it and to rollout new services

Internet Security

The various mechanisms used for Internet-based communications security can be grouped under three categories. These sets focus on the problems of:

- ① Authorization, Authentication and Integrity
- ② Privacy
- ③ Availability by controlling access

Authorization

Most web security systems are based on two step process. The 1st step is authentication which ensures about the user identity and the second stage is authorization, which allows the user to access the various resources based on the user's identity.

* Authentication is the name of the process to verify the identity of a user as they log onto a network.

Categories of Authentication

- ① User to Host - Host identifies users
- ② Host to Host
- ③ User to Host

Integrity - Integrity refers to the condition of data after it has been transmitted to another location as compared to its original condition. It is possible that as a file, electronic mail or data is transmitted from one location to another, its integrity may be compromised.

More and more intrusion incidents occur. The severity of the assault or damage incurred by the intruder escalates. It is possible for a hacker to intercept an important e-mail message that is being sent as a memorandum from the headquarter's office to all of its remote locations. He may alter the message by adding or deleting information, rerouting the message to a competing company or stopping the transmission of the message.

Internet Privacy:-

A user expects to trust in a secure system; just as the telephone is a safe and private medium free of wiretaps and hackers, electronic communication must merit equal trust. Privacy must be maintained against eavesdroppers on the network and against unauthorized insiders.

* Confidentiality is the assurance of privacy often achieved on the Internet through the use of encryption. The power of information technology to store and retrieve information can have a negative effect on the right to privacy of every individual.

* The unauthorized use of such information has seriously damaged the privacy of individuals. Errors in such databases could seriously hurt the credit standing or reputation of an individual.