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E-COMMERCE FIELD STUDY

E-Commerce Main Targets

- Selling can be focused to the global customer
- Pre-sales, subcontracts, supply
- Financing and insurance
- Commercial transactions: ordering, delivery, payment
- Product service and maintenance
- Co-operative product development
- Distributed co-operative working
- Use of public and private services
- Business-to-administrations (e.g. customs, etc)
- Transport and logistics
- Public procurement
- Automatic trading of digital goods
- Accounting
- Dispute resolution

E-Commerce Advantages

How e-Commerce provides advantages to Society

- ☐ Customers need not to travel to shop a product thus less traffic on road and low air pollution.

- ☐ E-Commerce helps reducing cost of products so less affluent people can also afford the products.

- ☐ E-Commerce has enabled access to services and products to rural areas as well which are otherwise not available to them.

- ☐ E-Commerce helps government to deliver public services like health care, education, social services at reduced cost and in improved way.

E-Commerce Advantages

How e-Commerce provides advantages to Organizations

□ Using E-Commerce, organization can expand their market to national and international markets with minimum capital investment.
An organization can easily locate more customers, best suppliers and suitable business partners across the globe.

□ E-Commerce helps organization to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.

□ E-commerce improves the brand image of the company.

□ E-commerce helps organization to provide better customer services.

□ E-Commerce helps to simplify the business processes and make them faster and efficient.

□ E-Commerce reduces paper work a lot.

□ E-Commerce increased the productivity of the organization.
A business process starts when a request comes from a customer and it uses just-in-time manufacturing way.

E-Commerce Advantages

How e-Commerce provides advantages to Customers

- Using E-Commerce, organization can expand their market to national 24x7 support.

- E-Commerce application provides user more options and quicker delivery of products.

- E-Commerce application provides user more options to compare and select the cheaper and better option.

- A customer can put review comments about a product and can see what others are buying or see the review comments of other customers before making a final buy.

- E-Commerce provides option of virtual auctions.

- Readily available information. A customer can see the relevant detailed information within seconds rather than waiting for days or weeks.

- E-Commerce increases competition among the organizations and as result organizations provides substantial discounts to customers.

E-Commerce Disadvantages

Technical Disadvantages Exhibited through e-Commerce

- There can be lack of system security, reliability or standards owing to poor implementation of e-Commerce.

- Software development industry is still evolving and keeps changing rapidly.

- In many countries, network bandwidth might cause an issue as there is insufficient telecommunication bandwidth available.

- Special types of web server or other software might be required by the vendor setting the e-commerce environment apart from network servers.

- Sometimes, it becomes difficult to integrate E-Commerce software or website with the existing application or databases.

- There could be software/hardware compatibility issue as some E-Commerce software may be incompatible with some operating system or any other component.

E-Commerce Disadvantages

Other Disadvantages Exhibited through e-Commerce

- Initial cost: The cost of creating / building E-Commerce application in-house may be very high.

- User resistance: User may not trust the site being unknown faceless seller.

- Security/ Privacy: Difficult to ensure security or privacy on online transactions.

- Lack of touch or feel of products during online shopping.

- E-Commerce applications are still evolving and changing rapidly.

- Internet access is still not cheaper and is inconvenient to use for many potential customers like one living in remote villages.

E-Commerce Benefits

Benefits Exhibited through e-Commerce

- Increased accessibility to customers
- Convenience of making comparisons
- Increased Profitability
  - The direct cost to sale for an order taken from an web site is lower as compared to traditional means.
  - Provides the solution by decimating the costs, which are incurred.
- Innovation…
  - E-commerce enables business organization to create new products or services.
- Improvement in consumer service
  - High levels of customer satisfaction generate increased sales and increased profits.
- Uncountable Strategic Benefits (Document preparation, Error detection and correction, campaigns, etc…)

E-Commerce Driving Forces

Factors that affect the evolution of e-Commerce

- Economic Forces
  - Lower marketing costs, sales costs, and ordering-processing costs
  - New sales opportunities

- Market Forces
  - Strong competition between organizations,
  - Extremely low labor cost in some countries,
  - Frequent and significant changes in markets and
  - Increased power of consumers

- Technology Forces ...

- Societal and environmental forces ...

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E-Commerce and Business Models

Business - to – Business (B2B)

☐ A website following the B2B business model sells its products to an intermediate buyer who then sells the product to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to the final customer who comes to buy the product at one of its retail outlets.
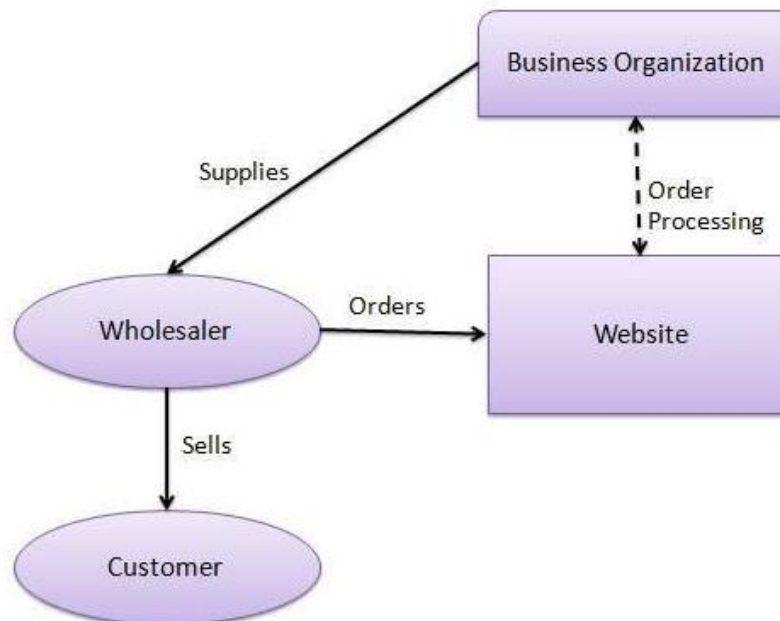
E-Commerce and Business Models

Business - to – Business (B2B)

- B2B identifies both the seller as well as the buyer as business entities. B2B covers a large number of applications, which enables business to form relationships with their distributors, re-sellers, suppliers, etc.

Following are the leading items in B2B eCommerce:

- Electronics

- Shipping and Warehousing

- Motor Vehicles

- Petrochemicals

- Paper

- Office products

- Food

- Agriculture

E-Commerce and Business Models

Business - to – Business (B2B)

☐ B2B identifies both the seller as well as the buyer as business entities. B2B covers a large number of applications, which enables business to form relationships with their distributors, re-sellers, suppliers, etc.

Insight over the Key technologies:

☐ Electronic Data Interchange (EDI) – EDI is an inter-organizational exchange of business documents in a structured and machine processable format.

☐ Internet – represents the World Wide Web or the network of networks connecting computers across the world.

☐ Intranet – represents a dedicated network of computers within a single organization.

☐ Extranet – represents a network where the outside business partners, suppliers, or customers can have a limited access to a portion of enterprise intranet/network.

☐ Back-End I.S. Integration D.B.M.S. used to manage the business data.

E-Commerce and Business Models

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Overview on the applied Architectural Models:

☐ Supplier Oriented marketplace – In this type of model, a common marketplace provided by supplier is used by both individual customers as well as business users. A supplier offers an e-stores for sales promotion.

☐ Buyer Oriented marketplace – In this type of model, buyer has his/her own market place or e-market. He invites suppliers to bid on product's catalog. A Buyer company opens a bidding site.

☐ Intermediary Oriented marketplace – In this type of model, an intermediary company runs a market place where business buyers and sellers can transact with each other..

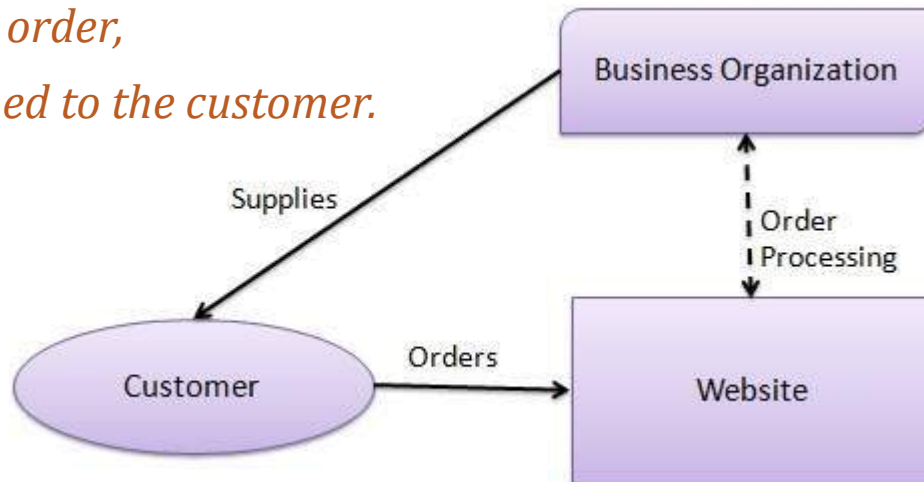# E-Commerce and Business Models

Business - to – Consumer (B2C)

☐ A website following the B2C business model sells its products directly to a customer. A customer can view the products shown on the website. The customer can choose a product and order the same. The website will then send a notification to the business organization via email and the organization will dispatch the product/goods to the customer.
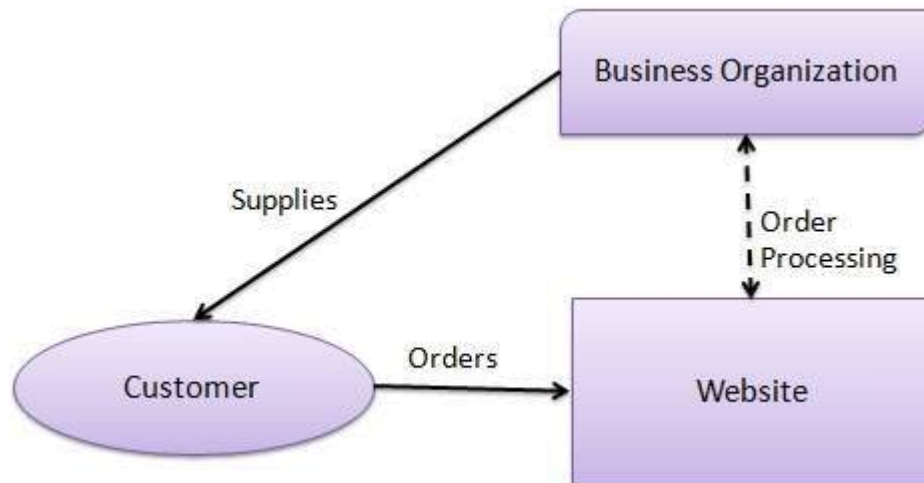
E-Commerce and Business Models

Business - to – Consumer (B2C)

- In B2C model, a business website is a place where all the transactions take place directly between a business organization and a consumer.

1. *a consumer goes to the website,*
2. *selects a catalog,*
3. *orders the catalog,*
4. *an email is sent to the business organization.*
5. *After receiving the order,*
6. *goods are dispatched to the customer.*

E-Commerce and Business Models

Business - to – Consumer (B2C)

- In B2C model, a business website is a place where all the transactions take place directly between a business organization and a consumer.

Following are the key features of the B2C

- Heavy advertising required to attract customers.
- High investments in terms of hardware/software.
- Support or good customer care service.

E-Commerce and Business Models

Business - to – Consumer (B2C)

□ In B2C model, a business website is a place where all the transactions take place directly between a business organization and a consumer.

Consumer Shopping Procedure

1) The consumer determines the requirement.

2) searches available items on the website meeting the requirment.

3) compares similar items for price, delivery date or any other terms.

4) places the order.

5) pays the bill.

6) receives the delivered item and review/inspect them.

7) consults the vendor to get after service support or returns the product if not satisfied with the delivered product.
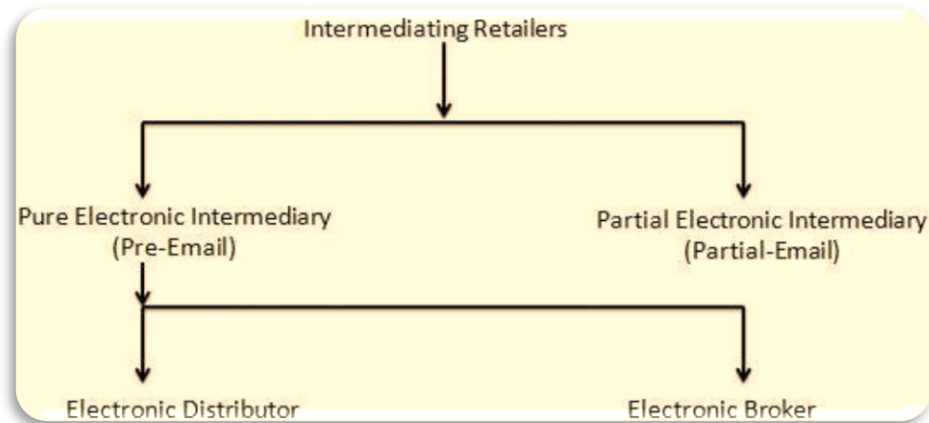
E-Commerce and Business Models

Business - to – Consumer (B2C)

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Disintermediation and Re-intermediation

The process of removal of business layers responsible for intermediary functions is called *disintermediation*.

The process of shifting of business layers responsible for intermediary functions from traditional to electronic mediums is called *re-intermediation*.

# E-Commerce and Business Models

Consumer - to – Business (C2B)

□ In this model, a consumer approaches a website showing multiple business organizations for a particular service. The consumer places an estimate of amount he/she wants to spend for a particular service. For example, the comparison of interest rates of personal loan/car loan provided by various banks via websites. A business organization who fulfills the consumer's requirement within the specified budget, approaches the customer and provides its services.
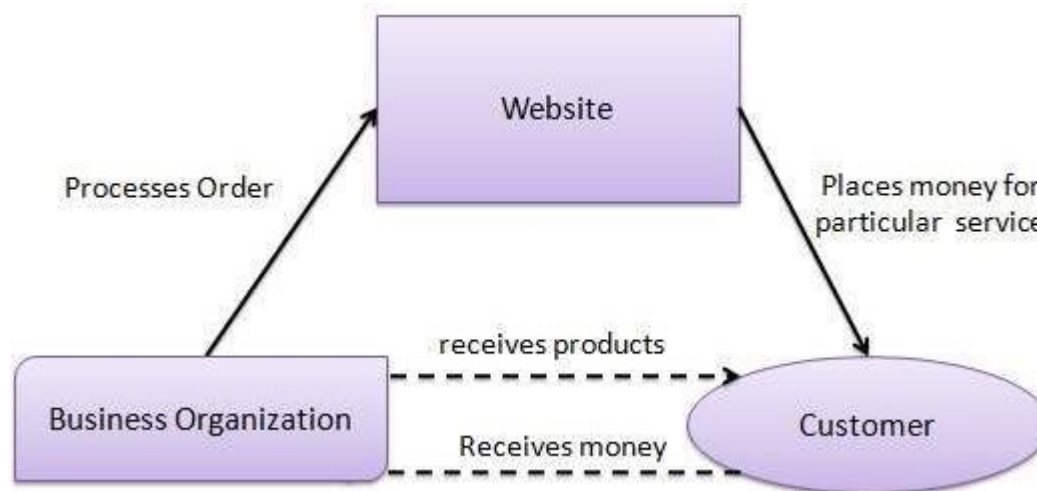
E-Commerce and Business Models

Business - to – Government (B2G)

☐ B2G model is a variant of B2B model. Such websites are used by governments to trade and exchange information with various business organizations. Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government.
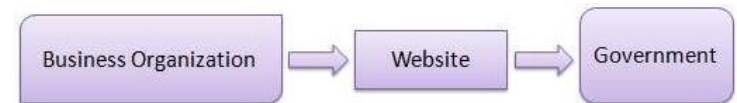
Government - to – Business (G2B)

☐ Governments use B2G model websites to approach business organizations. Such websites support auctions, tenders, and application submission functionalities.

Government - to – Citizen (G2C)

☐ Governments use G2C model websites to approach citizen in general. The main objective of G2C websites is to reduce the average time for fulfilling citizen's requests for various government services.

E-Commerce Core Components

Payment Systems

☐ Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time-consuming than manual processing, it helps business organization to expand its market reach/expansion.

Models of electronic payments:

☐ Credit Card

☐ Debit Card

☐ Smart Card

☐ E-Money

☐ Electronic Fund Transfer (EFT)

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Credit Card

☐ When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill.

Following are the actors in the credit card

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

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Credit Card

- Payment Process

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

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Debit Card

- The major difference between a debit card and a credit card is that in case of payment through debit card, the amount gets deducted from the card's bank account immediately and there should be sufficient balance in the bank account for the transaction to get completed; whereas in case of a credit card transaction, there is no such compulsion.

- Debit cards free the customer to carry cash and cheques. Even merchants accept a debit card readily. Having a restriction on the amount that can be withdrawn in a day using a debit card helps the customer to keep a check on his/her spending.

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Smart Card

- Smart card is again similar to a credit card or a debit card in appearance, but it has a small microprocessor chip embedded in it. It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.

- Smart cards can only be accessed using a PIN that every customer is assigned with. Smart cards are secure, as they store information in encrypted format and are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

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E-Money

- 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.

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Electronic Fund Transfer

☐ It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in the same bank or different banks. Fund transfer can be done using ATM or using a computer :

1. *A customer uses the website provided by the bank, logs in to the bank's website and registers another bank account.*

2. *then places a request to transfer certain amount to that account.*

3. *Customer's bank transfers the amount to other account if it is in the same bank, otherwise the transfer request is forwarded to an ACH (Automated Clearing House) to transfer the amount to other account and the amount is deducted from the customer's account.*

4. *Once the amount is transferred to other account, the customer is notified of the fund transfer by the bank.*

E-Commerce Core Components

Security Systems

□ 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.

Essential requirements for safe e-payments/transaction

□ 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.

E-Commerce Core Components

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Essential requirements for safe e-payments/transaction

□ 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.

E-Commerce Core Components

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Measures to ensure Security   Non-Repudiability

☐ 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.

E-Commerce Core Components

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Security Protocols in Internet

☐ Secure Socket Layer (SSL) It is the most commonly used protocol and is widely used across the industry. – "https://" is to be used for HTTP urls with SSL, where as "http:/" is to be used for HTTP urls without SSL.

It meets following security requirements

✓ Authentication

✓ Encryption

✓ Integrity

✓ Non-reputability

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Security Protocols in Internet

- Secure Hypertext Transfer Protocol (SHTTP) SHTTP extends the HTTP internet protocol with public key encryption, authentication, and digital signature over the internet. Secure HTTP supports multiple security mechanism, providing security to the end-users. SHTTP works by negotiating encryption scheme types used between the client and the server.It meets following security requirements

E-Commerce Core Components

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Security Protocols in Internet

☐ Secure Electronic Transaction It is a secure protocol developed by MasterCard and Visa in collaboration. Theoretically, it is the best security protocol.

It has the following components:

○ Card Holder's Digital Wallet Software – Digital Wallet allows the card holder to make secure purchases online via point and click interface.

○ Merchant Software – This software helps merchants to communicate with potential customers and financial institutions in a secure manner.

○ Payment Gateway Server Software – Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.

○ Certificate Authority Software – This software is used by financial institutions to issue digital certificates to card holders and merchants, and to enable them to register their account agreements for secure electronic commerce.

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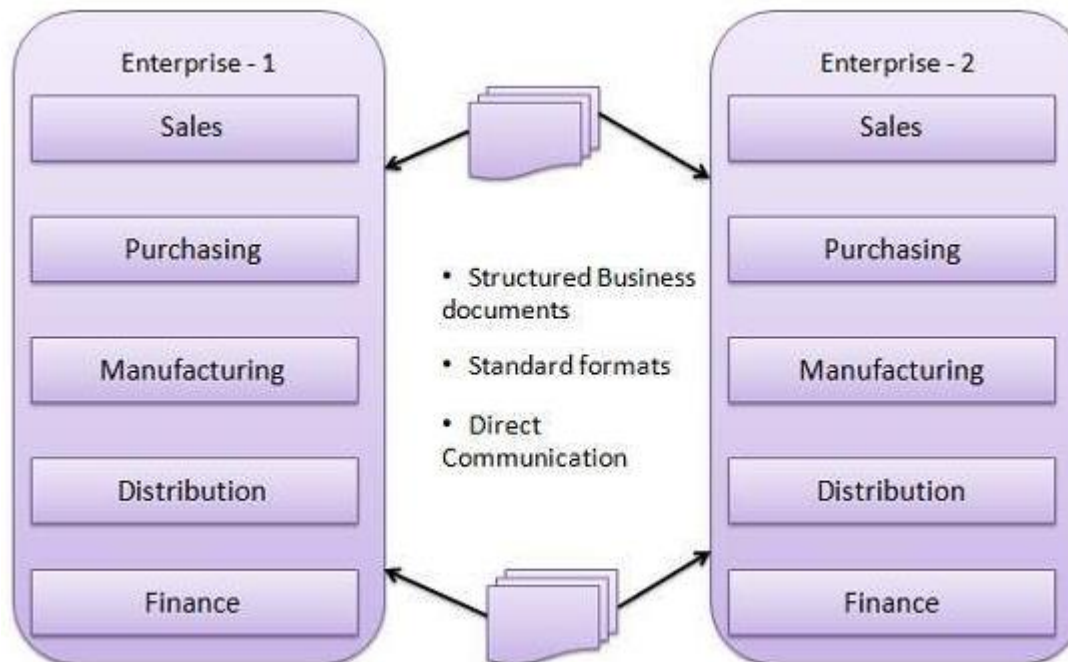
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E-Commerce Core Components

Electronic Data Interchange

- EDI is an electronic way of transferring business documents in an organization internally, between its various departments or externally with suppliers, customers, or any subsidiaries. In EDI, paper documents are replaced with electronic documents such as word documents, spreadsheets, etc.

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EDI Documents

- Invoices
- Purchase orders
- Shipping Requests
- Acknowledgement
- Business Correspondence letters
- Financial information letters

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Steps in an EDI System

☐ A program generates a file that contains the processed document.

☐ The document is converted into an agreed standard format.

☐ The file containing the document is sent electronically on the network.

☐ The trading partner receives the file.

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

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Advantages of an EDI System

- Reduction in data entry errors. – Chances of errors are much less while using a computer for data entry.

- Shorter processing life cycle – Orders can be processed as soon as they are entered into the system. It reduces the processing time of the transfer documents.

- Electronic form of data – It is quite easy to transfer or share the data, as it is present in electronic format.

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Advantages of an EDI System

- ☐ Reduction in paperwork – As a lot of paper documents are replaced with electronic documents, there is a huge reduction in paperwork.

- ☐ Cost Effective – As time is saved and orders are processed very effectively, EDI proves to be highly cost effective.

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

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E-Commerce Overview

An Overview on e-Commerce by its Technological Aspects.

☐ E-Commerce or is a methodology of modern business, on the exchange of business information using the following ways (Electronic Data Interchange (EDI), Electronic Mail (e-mail), Electronic Bulletin Boards, Electronic Fund Transfer (EFT), Other Network-based technologies).