

## MODULE 4

### CHAPTER 4

# Social Computing (SC)

#### University Prescribed Syllabus

Web 2.0 and 3.0, SC in business-shopping, Marketing, Operational and Analytic CRM, E-business and E-commerce – B2B B2C. Mobile commerce.

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## 4.1 INTRODUCTION TO SOCIAL COMPUTING

- The information systems developed initially focused more on efficiency of business processes, increasing productivity, reducing cost, increased profits etc. But now there is a diversion in the way information systems are working.
- The information systems are combined with another attribute called social behaviour to add value to business processes.
- This led to emergence of new field in business called Social Computing.
- **Social Computing** is an area of computer science that is concerned with the intersection of social behaviour and computational systems.
- There are various social platforms or softwares such as blogs, emails, wikis, instant messaging, social networking sites which are an important part of social computing.
- So, now it is not just the company who has control of what is being displayed on the web but even users such as customers can contribute to the content.
- They can provide this content directly when they give their reviews or feedback of a product that they had purchased from a company or by rating movies they watched.
- This type of platform is giving the control now in the hands of the user to interact directly and make this information available to everyone. Such content can help other users to make a decision while buying a product.
- At the same time it may help the organization to better understand the opinion of people about their product. If the opinion is bad the company can think of devising measures to improve their product.
- That is the power of social computing. Since, humans are social individuals and their behaviour and decisions are influenced by the people around them, the main aim of social computing is to improve association and interaction among people.
- Now, business organizations have to be keener, genuine, and truthful towards their customers as well as employees because failing to do so can affect their image badly and this can be easily reflected on the social media platforms by their customers or employees.
- All over the world wherever these social platforms like Facebook, Twitter, Youtube, Picasa, Wikis, etc. are being used extensively, social media is gaining popularity.
- Business organizations are making use of social computing in different ways for advertising and marketing their products and services, to improve customer relationship management processes, to develop better supply chain, make their human resource management efficient etc.
- Social Computing makes it so easy for someone who wants to start his business because all the knowledge about the competitors, their products, and people's feedback about the competitor products everything is available on such social platforms.
- As a result of use of Social Computing in business, it is often termed as Social Commerce. Social Computing makes use of Web 2.0 tools extensively. So let us see what Web 2.0 is.

**4.2 WEB 2.0**

- The first generation of Web was Web 1.0 which marked the beginning of creation of websites and commercialization of the Web. Users hardly interacted with Web 1.0 websites. We can say it was more static and only for information sharing purpose.
- As against Web 1.0, Web 2.0 is a more flexible and dynamic platform. It emphasizes more on user participation and social interaction. Web 2.0 is also called participative social web.
- It generates dynamic content that is receptive to user inputs. It provides various online tools and platforms where people can share their thoughts, perspectives, opinions, experiences etc.
- Web 2.0 websites range anywhere from social networking sites that let users upload photos and tag them, websites which deliver functionalities such as web services, others that mix up data from two or more applications as in web mashups or simply gather and display information on a particular topic from multiple sources as in wikis.
- The end user is not just a user of the application but he can also participate and contribute to the contents through blogging, podcasting, tagging, web content voting, rss feeds etc. We will discuss a few Web 2.0 tools in the next section.

**4.2.1 Ajax**

- Ajax stands for Asynchronous Javascript and XML. It makes the applications more dynamic, interactive and user friendly.
- It updates part of a webpage asynchronously without the need to reload the entire webpage. The technology makes use of an XMLHttpRequest object to request data from a web server which is in-built into the browser and JavaScript and HTML DOM to display or use the data.
- This makes the webpages more responsive by reducing the response time and enhances user experience.

**4.2.2 Really Simple Syndication (RSS)**

- This tool allows you to accumulate information about a particular topic of interest from different websites at one place, so that the user need not browse through several websites to collect the information.
- RSS is nothing but a collection of web feeds that provide updated information about anything such as blog entries, news headlines, or audio or video files.
- Using RSS anyone can syndicate/publish their content and anyone who is interested in the content can subscribe to it.
- When there are updates to the subscribed contents, the subscriber is notified. The subscriber can click on the notification link to view the complete content.
- There is a RSS feed reader that fetches the information and converts the files into the latest updates from websites in an easy to read format.

- The RSS reader is similar to your email inbox. When you subscribe to the RSS feed for a particular website, the RSS reader displays content from that website.

#### **4.2.3 Tagging**

- A **tag** is a meaningful term or a metadata used to describe something or someone, say for eg, a blog, a picture, an article, or a video clip. Application of tagging is seen commonly on Facebook, Twitter, and Instagram.
- **Tagging** helps to identify someone in a post, photo, tweet, or status update. This **tag** takes the form of a clickable name that will notify a person that you have referred to them in a post or photo.
- This type of tagging is called **phototagging** where the tagged photos get linked with the associated user's profile.
- Similarly, there is **geotagging** that deals with tagging information on maps, like Google map allows users to add pictures and information, such as hotel reviews and ratings to the maps.
- This helps other users as they can see pictures, ratings and other relevant information alongwith the location details.

#### **4.2.4 Blogs**

- A **blog** is an informational website that displays the information in a descending chronological order. The **bloggers** are the ones who contribute to the content.
- They are individuals or groups who share their views on common topics of interest. They write stories, convey news, and provide links to other articles of interest to them.
- Anyone can create blogs by registering to blogging service providers such as [www.blogger.com](http://www.blogger.com), which is now owned by Google.
- **Blogosphere** is a term for millions of blogs on the Web. Although blogs could be useful but it is not necessary that they are always authentic and true.
- The views that clients put on the blogs about a company and its products and services need not always be correct.
- Another way of blogging is through short messages or by taking pictures or videos and publishing them. This is known as **microblogging**. Usually these messages are short upto 140 characters.
- **Twitter** is one of the most popular and free microblogging service. The messages sent by users on Twitter are known as **tweets**. All the users who sign up to someone's profile can see those tweets on the user's profile page.
- It can be used as an effective tool by companies to improve their business. They can provide information about their products and services and can also get feedback about the same from their customers.

#### 4.2.5 Wikis

**Wikis** are collaborative websites with open editing facility. Any user can add, delete or modify content on the wiki pages.

**Wikipedia** is the world's largest online encyclopedia with around 3.4 million articles. There are administrators who monitor the content on these pages and have the authority to delete content which is not authentic. But still there is a controversy on the reliability of the content on such wikis.

Wikis enable companies to collaborate with customers, suppliers, and other business partners on projects. Wiki pages describing a company's product can be created and customers can be given access to edit these wiki pages with their opinions, reviews or add any additional description of the product.

#### 4.2.6 Social Networking Websites

**Social networking** website is a network formed by connecting people together over a social platform with the intent of friendship, business collaboration, improving family relationship, trade etc. On social networking websites individuals can create their own profile pages for free.

They can then post pictures, videos or music, play games, chat with one another and also form virtual communities such as virtual marketplaces where buying and selling of goods can be done.

**Facebook** is a social networking site for general public to meet socially, **LinkedIn** which is a professional networking site and **Youtube** which is media sharing site.

#### 4.2.7 Web Mashups

**Web Mashup** is a website that takes various content from different websites and mixes them together to create a new content. The first ever mashup being created was **Google Maps**.

For example a travel agent can create a mashup on his website by taking maps from Google and then adding descriptive information about the location, tourist attractions and hotels in the nearby locality. A vast list of mashups can be found on [www.programmableweb.com](http://www.programmableweb.com).

### ► 4.3 WEB 3.0

- While Web 2.0 technologies were still emerging, there came up a new era of web that was **Web 3.0**. It is a leap forward to open, trustless and permissionless networks.
- Why do we say so ....open, trustless and permissionless?
  - ‘Open’ because these technologies are built using open source softwares and collaborative development by open community of developers.
  - ‘Trustless’ because there is no need of any third party authentication or verification.

- ‘Permissionless’ because no special permissions are required for participation. Anyone from the client side or developer side can contribute to the content.
- Web 3.0 focuses on innovative technologies such as edge computing, decentralised data networks and artificial intelligence.
- It all deals with computing which is distributed and brings computation and data storage closer to the location where it is needed to improve response times and save bandwidth.
- Web 3.0 refers to the evolution and alteration of Web into a database and also further upgradation of back-end of the Web.

#### ➤ 4.3.1 Features of Web 3.0

Below are five main features that can help us to define Web 3.0:

1. **Semantic Web** : It is also called the Web of Data or Linked Data Web. Semantic Web deals with meaning of data and not the structure of data. It enables data to be linked from one source to any other source so that machines can perform even more complex tasks. It encompasses various technologies like Semantic Search and Natural Language Processing (NLP).The basic standards of Semantic Web include:
  - (i) **Resource Description Framework (RDF)** : The entire Semantic Web information is stored and represented in RDF. It is the data modeling language for the Semantic Web.
  - (ii) **SPARQL** : It is the query language of the Semantic Web. It is designed to query data across various systems.
  - (iii) **OWL** : It is the Web Ontology Language also called schema language, or knowledge representation language of the Semantic Web. OWL helps to define every concept carefully so that they can be understood and reused in different contexts in combination with other words.
2. **Artificial Intelligence** : It is humanlike brainpower put into machines. Artificial intelligence will make machines more intelligent thereby fulfilling the needs of users. Say for example, Company websites will be able to display more appropriate data to users by applying filters intelligently based on their previous searches and preferences.
3. **3-D Graphics** : Web 3.0 will change the way internet is presented to the world from two dimensional views to three dimensional views, turning it into more realistic. The 3-D graphics technology is vastly being used in Web 3.0 such as online games, e-commerce, etc. In online games like Second Life players actually get into their online characters or so called Avatars and forget their real selves. That would be the impact of 3-D world.
4. **Ubiquity** : Ubiquitous means anywhere and anytime. With the advent of mobile devices and internet access, the Web 3.0 experience can be made available anywhere at any time. The internet will no longer be restricted to only your desktops or smartphones but it will be omnipresent. Web 3.0 hence can be called as the web of everything and everywhere, as most things around us can be easily connected online which is also referred to as Internet of Things.

5. **Connectivity** : With Web 3.0, information happens to be more connected because of semantic metadata. It enriches the user experience due to vast availability of information.

### ➤ 4.3.2 Advantages and Disadvantages of the Web 3.0

#### ➤ Advantages

1. Semantic web enhances information linking
2. Enables efficient searching of information
3. Better web browsing experience
4. More human machine interaction

#### ➤ Disadvantages

1. Need of powerful devices to support Web 3.0
2. Very complicated for novices to understand the upcoming technologies

### ➤ 4.3.3 Challenges of Web 3.0 Implementation

The few biggest challenges to Web 3.0 are as follows:

1. As the internet is enormous so is the data floating over it. With so much of information and every piece of information having so many terminologies, with every terminology used in different contexts, it is a challenging task to be able to deal with such vast amounts of data.
2. The queries fired by users could at times be very vague leading to the need of other methods to deal with this vagueness, such as fuzzy logic systems.
3. The results presented may be uncertain and to deal with this uncertainty there is a need of newer techniques such as probabilistic reasoning. For example, a disease diagnosing system may diagnose a disease wrongly as the symptoms presented by the patient might correspond to many diseases each with different probabilities.
4. Inconsistent data over the internet might lead to difficulty in predictive analysis.

### ► 4.4 BENEFITS OF SOCIAL COMPUTING

After briefing out the different generations of the Web, the technologies used and their relevance to social computing, let us now see the benefits of Social Computing to both the business organizations as well as customers.

#### **4.4.1 Benefits to Business Organization**

**UQ.** Describe the benefits of social commerce to customers.

(MU - Q. 3(B), Jan. 21, 5 Marks)

**UQ.** What are the potential benefits of social commerce to the customers and to the business?

(MU - Q. 4(A), Dec. 19, 10 Marks)

1. The social platform has become a very significant marketing tool for businesses to make their brand awareness.
2. They can easily advertise and market their products through user generated content, for example, through reviews or even via viral marketing by sharing of promo links among friends.
3. New products can be discussed and innovative ideas can be shared between business partners through communication within virtual communities.
4. They can understand the customer needs more appropriately through feedbacks, reviews and ratings on the business website or other platforms like Twitter and Facebook.
5. Increased sales and motivation for developing new and better products when customers give positive feedback on the social networking sites.
6. Negative feedbacks help the business organizations to improvise on the quality of product and service in order to retain their image and reputation in the market.

#### **4.4.2 Benefits to Customers**

1. Customers' expectations can be fulfilled faster and in a complete manner as the social platform is open for interactions.
2. Customers browsing experience is enhanced as better searching, filtering, chatting facilities are available.
3. Better decision making while buying a product by analysing the reviews and ratings given by other customers who have already bought the product.
4. One customer can support the other through online forums.
5. Customer complaints are handled very quickly because disgruntled customers can defame the business organization by giving negative feedback on social platforms like Twitter, Facebook or any other consumer complaint forum.

#### **4.4.3 Problems of Social Computing**

- Inspite of all of its benefits, social computing does face some problems.

1. Negative feedback from unhappy customers about a company's product and/or services may have harmful impact on the sales of the company.
2. The company's competitors may also purposely post wrong reviews about the company's products on their business pages on social networking sites to defame them. The company should be ready to face these glitches and handle them properly.

- 3. The company cannot even block such competitors or customers neither can they delete the comments because this might create suspicion in the minds of the other customers.
- Let us now proceed with the applications of Social Computing in different business areas.

## ► 4.5 SOCIAL COMPUTING IN BUSINESS-SHOPPING

- While speaking about social computing in business we are actually referring to carrying out electronic commerce transactions through social computing.
- Through social interactions, customers can participate in the marketing and selling of products and services in virtual markets.
- In this type of social commerce all the key aspects of social networks are applied into shopping such as making friends, groups, reviews, ratings, comments, discussions, etc. The experience of the shopper is enhanced by giving him options to shop by age, gender, price, location etc.
- Shoppers can form groups and communities and promote products that they liked and also write short descriptions or blogs for the same by creating their own profile pages.
- Customers refer these feedbacks and descriptions before making a purchase.
- There are various websites like Pricekart.com that use comparison agents for shoppers to make better buying decisions. A sample page of the same is shown in Fig. 4.5.1.

Fig. 4.5.1: Use of comparison agents

- Group shopping websites such as Groupon.com offer major discounts or special deals on group bookings at restaurants, spas, or some concerts or shows.
- Customers who purchase a deal get bonus points if they convince other friends to buy the deal.
- Shopping communities and clubs such as Shopify.com arrange special sales and offers on luxury brands only for their members for some limited time period.
- Well known social market places such as Ebay and Amazon act as intermediaries to facilitate online buying and selling of products and services.
- Also there are peer-to-peer shopping models which are similar to the old barter systems. Consumers use such shopping models to sell, buy, rent, or barter online with other individuals. For example, websites like OLX where one consumer can sell product to another consumer directly.
- Zoom car is a car-sharing company where owner of the car can rent his car to another individual and get paid depending on the number of hours of usage.

## ► 4.6 SIGNIFICANCE OF SOCIAL COMPUTING IN BUSINESS : MARKETING

**UQ.** Discuss the significance of social computing in marketing in detail. (MU - Q. 5(A), Dec. 19, 10 Marks)

- Marketing can be defined as the process adopted by business organizations for showcasing and promoting their products and services.
- It focuses on strategies to achieve customer loyalty and build profitable customer relationships.
- Initially the business organization has to identify the target market segment and then build strategies to understand and fulfil their needs.
- What kind of messages will attract the customer and how they can be propagated all over on social media say through promotional mails, web ads, viral marketing or some other technique.
- Social computing can be used in two ways to support marketing: **advertising and market research.**

### ❖ 4.6.1 Advertising

- Social advertising is that form of advertising that makes use of social information on social networks for targeting and delivering advertising content.
- This is not any explicit way of advertising but very generally peer pressure or a friend endorsing or recommending a product, or any other form of social influence. So, here the customers themselves become a medium of promoting the product.
- Placing advertisements on dominant portals and social networking websites where the visitor traffic is high is another way of marketing the product to large number of customers.
- Word of mouth or **Viral marketing** advertising where businesses also use social media to identify who are the potential customers and convince them to spread positive messages about their products or services.

- Companies offer special discounts, better deals or referral points to customers who socially influence others to purchase the product.
- Social networking websites also provide ways to advertise in social media.
- For example, Facebook lets a company create its business page, including a store that attracts fans and lets them meet other customers and then advertise the Facebook store.
- Twitter lets business organizations to tweet their success stories to customers.

#### **4.6.2 Market Research**

- In the older days collecting customer demographics for marketing purpose was very time-consuming because the marketing people had to go to the customer and convince them to provide the same.
- But in these modern times the things have changed completely. People become members of social networks and voluntarily submit their information to the websites.
- Since everything is open on the social web, sellers can easily find the potential customers interested in their products.
- **Conversational marketing** is an effective tool for promoting the products. These tools enable customers to provide feedback via blogs, wikis, online forums, and social networking sites.
- Since here social relationships are used for marketing, it becomes a very successful, faster as well as cheaper tool for marketing.
- Social computing is not restricted to businesses that collect demographic information for market research but even customers can use it for carrying out market research before buying a product or availing a service.
- For example : Users carry out complete survey of cars on Cars.com based on their choices and preferences before buying the car.

#### **4.7 SOCIAL COMPUTING IN BUSINESS : CUSTOMER RELATIONSHIP MANAGEMENT**

**UQ.** Describe how social computing inspires customer service.

(MU - Q. 1(D), Dec. 19, 4 Marks)

**UQ.** Discuss why social computing is so important in customer relationship management?

(MU - Q. 3(a), Jan. 21, 5 Marks)

- Social Computing has greatly transformed the way businesses are serving their customers and focussing more on building healthy customer relationships. At the same time it inspires the way customers are interacting with the businesses and their expectations from them are increasing.
- Let us take a look at how social computing improves customer service.
  - (i) Business organizations are using social computing to better understand their customers. They are becoming more watchful of the negative comments posted by their customers and taking it positively to overcome the problems and improve product quality as well as customer service.



- (ii) Customers are now not just buyers but also advocates and influencers who actually influence the buying patterns of their peers on the social network. Hence, businesses need to be very keen in responding to customers quickly and fulfilling their requests faster.
- (iii) Since customers have all the power and they are the ones who can fame or defame a brand, companies need to meet every requirement and expectation of the customer.
- (iv) Social computing provides many opportunities for businesses to interact with their customers and resolve their complaints efficiently thereby turning disgruntled customers into supporters for the firm.
- (v) Providing discounts and intimating regular customers about offers and sales through emails are other ways of building better relationships with the customers.
- (vi) To extend customer service, businesses can invite customers to become Facebook fans of their company page and also follow the company on Twitter. This way they can be the first person to know about the company's exclusive promotions and offers.

#### **4.7.1 Different Types of CRM**

**Q.U.** Define CRM. Describe the different types of CRM.

(MU - Q. 6(A), Dec. 19, 10 Marks)

- Definition:** Customer relationship management (CRM) is a customer-centric organizational strategy. Business organizations focus on better understanding customers' requirements for products and services and then fulfilling their needs by providing high-quality, responsive service.
- In this way the company can retain existing customers and gain new ones.
- Since customers have all the power and they are the ones who can elevate or demote the image of the company, organizations have extended their focus from conducting business transactions to managing customer relationships.
- CRM builds sustainable long-term customer relationships that create value for the company as well as for the customer and this is the key to its success.
- Getting back a lost customer is far more difficult and expensive than retaining an existing customer. So the company's aim should be to keep the customers happy and maintain good customer relationships.
- The two basic types of CRM are Operational CRM and Analytical CRM.

#### **4.7.1(A) Operational Customer Relationship Management Systems**

- **Operational CRM systems** basically deal with front office business processes.
- Front office processes include marketing, sales and support.
- Operational CRM systems provide the sales and service employees access to complete details of customers, their purchase history, credit details and all interactions with the organization.
- These systems help identify the most profitable customers, and provide them the best service.
- Improving the order management processes, improving customer satisfaction as well as maximizing sales and profits is the ultimate aim of such systems.

- These processes help in better understanding the customer requirements, fulfill them effectively and thus build healthy relationships with them.

### 4.7.1(B) Analytical Customer Relationship Management Systems

- In contrast to Operational CRM systems that handle front office business processes, **Analytical CRM systems** are more into business analytics.
- These systems involve acquiring business intelligence by analyzing customer behaviours and expectations which have been already collected in front office processes.
- These systems involve processes that collect information related to customer requests and responses to the company's sales and marketing strategies.
- They make use of modern technologies like data warehousing, data mining and decision support, which perform analyses on the collected historical information about the customer's behaviour, their relationships with the organization; create various statistical models of this information over time and then make predictions about acquiring, retaining, and losing customers.
- The analyses is presented in the form of reports for the management to make further decisions such as how to improve customer retention, customer profitability analyses etc.
- Fig. 4.7.1 illustrates the relationship between operational CRM systems and analytical CRM systems.

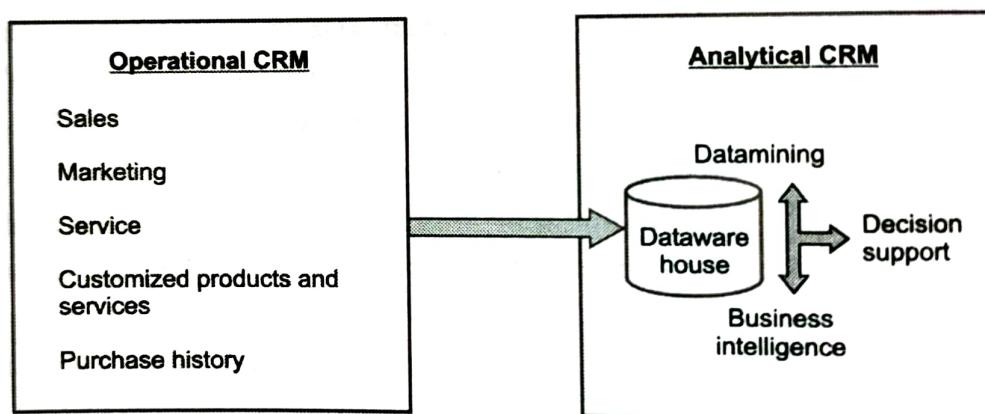


Fig. 4.7.1: Operational and Analytical CRM

### 4.8 OVERVIEW OF E-BUSINESS AND E-COMMERCE

- Any organization who wants to add a new channel to its traditional way of doing business i.e. a brick and mortar shop can think of building a website for practicing Electronic Commerce (E-commerce).
- An understanding of what purpose will be satisfied by these websites is very important i.e. buying and selling of goods, reducing operational and transactional costs, create a brand image, make aware people about existing brick and mortar shops. In this section we will see the basics of E-business and E-commerce.

### 4.8.1 E-Commerce

- **Electronic commerce** describes the process of buying, selling, and /or exchanging of products and services through computer networks via electronic medium such as internet.
- E-Commerce (EC) can be classified based on the degree of digitization used as **pure e-commerce** and **partial e-commerce** in contrast to traditional commerce which involves pure physical organizations referred to as **brick-and-mortar organizations**.
- In contrast, in *pure EC* all dimensions are digital and organizations engaged in pure EC are called **virtual (or pure-play) organizations**.
- The other type of e-commerce that includes a mix of digital and physical dimensions is called *partial EC* and organizations engaged in such kind of commerce are known as **clicks-and-mortar organizations**.
- Purchasing a book from **Amazon.com** is an example of partial EC because the goods, although bought online are delivered physically by some freight transportation such as FedEx or UPS. In contrast, buying and downloading an e-book from **Amazon.com** is pure EC because the product is delivered digitally.
- Ecommerce can also be classified based on the parties involved in conducting the e-commerce transaction as :
  1. **Business-to-consumer electronic commerce (B2C)** : In B2C, the sellers are organizations, and the buyers are individuals.
  2. **Business-to-business electronic commerce (B2B)** : In B2B transactions, both the sellers and the buyers are business organizations. B2B comprises the vast majority of EC volume.
  3. **Consumer-to-consumer electronic commerce (C2C)** : In C2C (also called customer-to-customer), an individual sells products or services to other individuals. C2C is usually carried out on the Internet in the form of auctions and classified ads.
  4. **Business-to-employee (B2E)** : In B2E, an organization uses EC internally to provide information and services to its employees. For example, companies allow employees to manage their benefits, buy discounted insurance, travel packages, and tickets to events, on the corporate intranet. Also, many companies have electronic corporate stores that sell the company's products to its employees, usually at a discount.
  5. **E-government** : E-government involves e-commerce to deliver information and public services to citizens. It involves Business-to-government (B2G) and Consumer-to-government (C2G) e-commerce transactions. E-government helps the government in delivering the public services more effectively. An example of B2G is business organizations filling up e-tenders for government contracts, C2G where individuals pay taxes online to government, G2C where governments transfer benefits such as pension funds directly to beneficiary's bank account through online mode.

### 4.8.2 Benefits & Limitations of E-Commerce

#### (A) Benefits of E-Commerce

1. E-commerce provides broader access to global market by breaking the limitations of physical boundaries.
2. It strives to lower the operational and transactional costs.
3. It provides faster access and 24 × 7 availability to different products and services.
4. Customers get access to variety of products and services, around the clock.
5. Any kind of information, services, and products can be delivered to people in cities, rural areas, and developing countries.

#### (B) Limitations of E-Commerce

Despite all these benefits, EC has some limitations.

1. One major technological limitation is the lack of universally accepted security standards.
2. In less-developed countries, availability of Internet to take advantage of e-commerce is a major concern. Also, telecommunications bandwidth is insufficient, and accessing the Web is quite expensive.
3. There still are cultural constraints where people are reluctant to use electronic medium to make purchases. They perceive that e-commerce is still insecure.
4. E-commerce still has unresolved legal issues and transborder issues.

As time passes, these limitations will surely diminish.

### 4.8.3 Electronic Payment Mechanisms

Implementation of e-commerce also involves **electronic payment mechanisms** that help buyers to pay electronically rather than writing cheques or carrying cash.

There are many types of electronic payment methods, two of which are discussed below.

- **Electronic Cheques** : Electronic cheques also called as *e-checks* are used mostly in B2B transactions. They are similar to the normal paper cheques. The customer must have an account in bank to issue an e-cheque. When the customer buys a product or a service, he will mail the encrypted electronic cheque to the seller. The seller deposits the cheque in the bank account, and the funds are transferred from the buyer's account into the seller's account. Like regular cheques, e-cheques need to be digitally signed.
- **Electronic Cards** : Electronic cards are used in B2C and C2C types of transactions. The most common form of electronic cards is credit cards, stored-value money cards, and smart cards. Customers can charge online payments to their card account and make payments.

#### 4.8.4 E-Business

- **Electronic business** is a comparatively broader concept. E-Business is a superset of E-Commerce or rather E-Commerce is a subset of E-Business.
- In addition to the buying and selling of goods and services, e-business extends to servicing customers, collaborating with business partners and suppliers and also carrying out electronic transactions within an organization.
- E-business includes a lot of business processes including online order processing, Customer Relationship Management (CRM), Supply Chain Management (SCM) and many more.

#### 4.8.4(A) Important components of E-Business

The important components of E-Business are:

1. **E-Procurement** : It is acquisition of products and services electronically in order to minimize cost and effort.
2. **Online Stores** : Online stores include e shops, web stores, mobile commerce setup basically for shopping of products. It saves great deal of time and money because there is no need to visit the store physically. All the transactions and payment happen online.
3. **Online Marketplace** : Online marketplaces are like intermediaries that provide a platform for buyers and suppliers to come together and carry out the transactions.
4. **Online Communities** : Such web communities allow people with common interests to come together and share their ideas and opinions. The individuals and the business organizations can form such communities where businesses can promote their products and individuals can become customers once they are convinced about the quality of the product through opinions of peers in the online communities.
5. **Online Companies** : These are nothing but businesses that have made their online presence and offer goods and services to consumers virtually through electronic platform unlike traditional organizations who have a physical presence.

#### 4.8.4(B) Functions of Electronic Business

The most significant function of E-Business is to create value for the Business through electronic medium. Some of the important functions covered under E-Business are:

- **Structuring** : This function deals with making variety of information available online.
- **Selection** : This function deals with providing relevant information as and when requested by the customer.
- **Matching** : This function deals with offering the best matches to the customer from a wide selection of suppliers thereby making decision making easier for the customer.

- **Transaction** : This function handles the order processing and payment once the customer has placed the order.
- **Coordination** : This function deals with adding value to the product by combining offers with the products after coordinating with the vendors who are providing the product.
- **Communication** : This function deals with improving communication of the organization with customers and suppliers for maintaining good relationships and business loyalty.

## ► 4.9 MOBILE COMMERCE

- Mobile commerce (m-commerce) is a type of electronic commerce that is conducted purely using wireless medium over the internet. Say for example, using mobile phones to buy a dress online or ordering a pizza online.
- Mobile commerce has made the lives of people easier and at the same time created a new opportunity for business organizations to carry out their businesses, promote their products and services and attract new customers.
- The ever increasing use of m-commerce is motivated by following factors:
  1. The use and increasing production of wide range of mobile devices.
  2. Availability of proper internet connectivity and sufficient bandwidth for transmitting text, video, multimedia etc.
  3. And thirdly, all this i.e. the mobile devices as well as the network connectivity is available at very affordable rates.

### ➤ 4.9.1 Mobile Commerce Applications

The most common mobile commerce applications include location-based applications, financial services, intrabusiness applications, accessing information, and telemetry.

1. **Location-Based Applications and Services** : When we carry out B2C type of m-commerce, location based services play a very important role. They provide location specific information such as locating nearby restaurant or ATM, checking traffic status on a particular route or track a shipment etc.
2. **Financial Services** : Financial services in m-commerce include making payments of products purchased, bill payments, money transfers through wireless payment services, mobile banking, e-wallets etc. Without the need to go to the bank or any restriction on time people can do the financial transactions with convenience.
3. **Intrabusiness Applications** : Apart from B2C m-commerce, mobile computing is also used by organizations for their internal transactions. Companies can use mobile services to assist their



employees in various tasks like in dispatch functions such as delivery of various products say a food order or courier service to the customer.

4. **Accessing Information** : To carry out mobile commerce another important function is making enough information available to the users. Mobile portals could be created that aggregate all the information and display it on the portal.
  5. **Telemetry Applications** : Telemetry is the wireless transmission and receipt of data gathered from remote sensors. In mobile computing telemetry have various applications. Say, a car manufacturer wants to remotely diagnose a problem in the remote vehicle or doctors can monitor patients and control medical equipments from a distance.

## ► 4.10 MULTIPLE CHOICE QUESTIONS

- Q.1** Electronic commerce systems generally include all of the following except: **(Jan. 2021)**

  - (a) Internet websites for online sales
  - (b) Intranets that allow sales reps to access customer records
  - (c) Extranet access of inventory databases
  - (d) Direct links to credit reporting services

**✓Ans. : (d)**

**Q.2** Which of the following is incorrect about social computing **(Jan. 2021)**

  - (a) Combines social behaviour and Information system
  - (b) Encourages and promotes machine-generated information
  - (c) Improves collaboration and interaction among people
  - (d) Produces social information

**✓Ans. : (b)**

**Q.3** What allows users to position data in multiple associations that overlap? **(Jan. 2021)**

  - (a) Tagging
  - (b) Really Simple Syndication
  - (c) AJAX
  - (d) Wikis

**✓Ans. : (a)**

**Q.4** Most companies are building e-business and e-commerce websites to achieve all of the following goals except:

  - (a) Generate new revenue from online sales
  - (b) Increase foot traffic at brick and mortar locations
  - (c) Reduce transaction costs
  - (d) Increase the loyalty of existing customers via Web customer service and support

**✓Ans. : (b)**

**Q.5** \_\_\_\_\_ is an area of computer science that is concerned with the intersection of social behavior and computational systems

  - (a) Social Computing
  - (b) E Computing
  - (c) Social Networking
  - (d) Social media

**✓Ans. : (a)**

- Q.6** Which one of these is not a social platform?  
 (a) Twitter      (b) Jitter      (c) Youtube      (d) Facebook ✓Ans. : (b)
- Q.7** Social Computing makes it so easy for someone who wants to start his business because  
 (a) it helps generate new revenue from online sales  
 (b) all the knowledge about the competitors, their products, and people's feedback everything is available on such social platforms  
 (c) it helps reduce transaction costs  
 (d) increases the loyalty of existing customers via Web customer service and support ✓Ans. : (b)
- Q.8** What is not true about Web 1.0 websites?  
 (a) They marked the beginning of creation of websites and commercialization of the Web.  
 (b) Users hardly interacted with these websites.  
 (c) They were more static and only for information sharing purpose.  
 (d) Used various tools such as AJAX, RSS, Wikis ✓Ans. : (d)
- Q.9** What is not true about Web 2.0?  
 (a) Web 2.0 is a more flexible and dynamic platform.  
 (b) It marked the beginning of commercialization of Web  
 (c) It emphasizes more on user participation and social interaction  
 (d) It generates dynamic content that is receptive to user inputs. ✓Ans. : (b)
- Q.10** Web 2.0 is called as participative social web. State whether true or false.  
 (a) True      (b) False ✓Ans. : (a)
- Q.11** Which of these is not a Web 2.0 tool?  
 (a) AJAX      (b) Semantic Web      (c) Wikis      (d) Tweets ✓Ans. : (b)
- Q.12** Which statement is true about Ajax?  
 (a) Ajax makes the applications more dynamic, interactive and user friendly.  
 (b) Ajax technology makes use of an XMLHttpRequest object to request data from a web server which is in-built into the browser.  
 (c) Ajax updates part of a webpage asynchronously without the need to reload the entire webpage.  
 (d) All of above ✓Ans. : (d)
- Q.13** Really Simple Syndication is a technology that  
 (a) updates part of a webpage asynchronously without the need to reload the entire webpage.  
 (b) allows you to accumulate information about a particular topic of interest from different websites at one place.  
 (c) makes use of an XMLHttpRequest object to request data from a web server  
 (d) None of above ✓Ans. : (b)

- Q.14** A \_\_\_\_\_ is a meaningful term used to describe something or someone.  
 (a) Tag      (b) Wiki      (c) RSS      (d) Tweet      ✓Ans. : (a)
- Q.15** \_\_\_\_\_ helps to identify someone in a post, photo, tweet, or status update.  
 (a) Tweeting      (b) Tagging      (c) Following      (d) None of above      ✓Ans. : (b)
- Q.16** Phototagging is the one that  
 (a) deals with tagging information on maps  
 (b) allows users to add pictures and information on maps  
 (c) the tagged photos get linked with the associated user's profile.  
 (d) None of above      ✓Ans. : (c)
- Q.17** \_\_\_\_\_ that deals with tagging information on maps, like photos and information on Google maps  
 (a) Phototagging      (b) Geotagging      (c) Tagging      (d) Tweeting      ✓Ans. : (b)
- Q.18** A \_\_\_\_\_ is an informational website that displays the information in a descending chronological order.  
 (a) AJAX      (b) Web Mashup      (c) Wikipedia      (d) Blog      ✓Ans. : (d)
- Q.19** The \_\_\_\_\_ are the ones who contribute and share their views on common topics of interest on blogging websites  
 (a) Tweeters      (b) Bloggers      (c) Visitors      (d) Mashupers      ✓Ans. : (b)
- Q.20** \_\_\_\_\_ is a term for millions of blogs on the Web.  
 (a) Blogosphere      (b) Webosphere      (c) Blogspot      (d) Weblog      ✓Ans. : (a)
- Q.21** Another way of blogging through short messages upto 140 characters is called  
 (a) Microblogging      (b) Miniblogging  
 (c) Tinyblogging      (d) None of above      ✓Ans. : (a)
- Q.22** \_\_\_\_\_ is one of the most popular and free microblogging service  
 (a) Facebook      (b) Twitter      (c) Youtube      (d) Google      ✓Ans. : (b)
- Q.23** \_\_\_\_\_ are collaborative websites with open editing facility, where any user can add, delete or modify content on the web pages.  
 (a) Mashups      (b) Newsfeeds      (c) Tweets      (d) Wikis      ✓Ans. : (d)
- Q.24** \_\_\_\_\_ is the world's largest online encyclopedia with around 3.4 million articles.  
 (a) Facebook      (b) Wikipedia      (c) Youtube      (d) Google      ✓Ans. : (b)
- Q.25** Which of these is not a form of social networking website?  
 (a) Facebook      (b) Myntra      (c) LinkedIn      (d) Youtube      ✓Ans. : (b)

**Q.26** Social networking is a

- (a) professional networking site and also supports media sharing .
- (b) network for business collaboration and improving family relationship.
- (c) network formed by connecting people together over a social platform with the intent of friendship
- (d) All of above

✓Ans. : (d)

**Q.27** \_\_\_\_\_ is a website that takes various content from different websites and mixes them together to create a new content.

- (a) Wiki
- (b) Web Mashup
- (c) Newsfeed
- (d) Tweet

✓Ans. : (b)

**Q.28** Web 3.0 focuses on

- (a) innovative technologies such as edge computing
- (b) decentralised data networks
- (c) artificial intelligence
- (d) All of above

✓Ans. : (d)

**Q.29** Semantic Web is

- (a) Web of Data or Linked Data Web
- (b) Web that deals with meaning of data and not the structure of data.
- (c) Both a and b
- (d) Neither a nor b

✓Ans. : (c)

**Q.30** An example of peer-to-peer shopping model is

- (a) Flipkart
- (b) OLX
- (c) Snapdeal
- (d) Myntra

✓Ans. : (b)

**Q.31** Well known social market places that act as intermediaries to facilitate online buying and selling of products and services.

- (a) Amazon
- (b) Torrent
- (c) Youtube
- (d) Twitter

✓Ans. : (a)

**Q.32** The type of marketing in which businesses use social media to identify who are the potential customers and convince them to spread positive messages about their products or services.

- (a) Affiliate marketing
- (b) Viral marketing
- (c) Permission marketing
- (d) Email marketing

✓Ans. : (b)

**Q.33** Social advertising is that form of advertising that

- (a) Generate new revenue from online sales
- (b) Increase the loyalty of existing customers via Web customer service and support content.
- (c) makes use of social information on social networks for targeting and delivering advertising
- (d) All of above

✓Ans. : (c)



- Q.34** \_\_\_\_\_ is a tool that enables customers to provide feedback via blogs, wikis, online forums, and social networking sites.
- (a) Affiliate marketing      (b) Conversational marketing  
 (c) Email Marketing      (d) None of above      ✓Ans. : (b)
- Q.35** \_\_\_\_\_ is a customer-centric organizational strategy that focuses on better understanding of customers' requirements.
- (a) Supply Chain Management      (b) Enterprise Resource Planning  
 (c) Customer Loyalty Management      (d) Customer Relationship Management      ✓Ans. : (d)
- Q.36** CRM is an organizational strategy
- (a) that builds sustainable long-term loyalty relationships with customers  
 (b) that builds sustainable long-term loyalty relationships with suppliers  
 (c) that builds sustainable long-term loyalty relationships with employees  
 (d) None of above      ✓Ans. : (a)
- Q.37** The two basic types of CRM are
- (a) Strategic CRM and Operational CRM      (b) Strategic CRM and Analytical CRM  
 (c) Operational CRM and Analytical CRM. (d) None of above      ✓Ans. : (c)
- Q.38** Which of these is not applicable to Operational CRM systems
- (a) provides complete details of customers and their purchase history  
 (b) deal with customer-facing functions  
 (c) handles customer order processing  
 (d) performs analysis on customer behavior      ✓Ans. : (d)
- Q.39** Analytical CRM systems deal with.
- (a) providing complete details of customers and their purchase history  
 (b) acquiring business intelligence by analyzing customer behaviours and expectations  
 (c) Increase the loyalty of existing customers via Web customer service and support  
 (d) None of above      ✓Ans. : (b)
- Q.40** The most common form of electronic cards are
- (a) credit card      (b) stored-value money cards  
 (c) smart cards.      (d) All of above      ✓Ans. : (d)
- Q.41** In \_\_\_\_\_ electronic commerce the sellers are organizations and the buyers are individuals.
- (a) Business-to-business      (b) Business-to-consumer  
 (c) Consumer-to-Consumer      (d) Consumer-to-Government      ✓Ans. : (b)
- Q.42** In \_\_\_\_\_ electronic commerce, both the sellers and the buyers are business organizations.
- (a) Business-to-business      (b) Consumer-to-Consumer  
 (c) Business-to-consumer      (d) None of above      ✓Ans. : (a)

**Q.43** \_\_\_\_\_ comprises the vast majority of EC volume.

- (a) Business-to-business
- (b) Consumer-to-Consumer
- (c) Business-to-consumer
- (d) None of above

✓Ans. : (a)

**Q.44** Which of these is not true about C2C transactions?

- (a) C2C is usually carried out on the Internet in the form of auctions and classified ads.
- (b) an individual sells products or services to other individuals
- (c) websites such as OLX are examples of C2C ecommerce
- (d) performs analysis on customer behavior

✓Ans.: (d)

**Q.45** In \_\_\_\_\_ an organization uses EC internally to provide information and services to its employees such as manage their benefits or buy discounted insurance etc.

- (a) Business-to-employee
- (b) Consumer-to-Consumer
- (c) Business-to-consumer
- (d) None of above

✓Ans. : (a)

**Q.46** Which of these is not true about E-government?

- (a) It involves e-commerce to deliver information and public services to citizens.
- (b) Increase the loyalty of existing customers via Web customer service and support
- (c) It involves business organizations filling up e-tenders for government contracts
- (d) It transfers benefits such as pension directly to beneficiary's bank account through online mode.

✓Ans. : (b)

**Q.47** E-Commerce is a \_\_\_\_\_ of E-Business.

- (a) superset
- (b) equivalent
- (c) subset
- (d) none of above

✓Ans. : (c)

**Q.48** E-business includes a lot of business processes such as

- (a) Online order processing
- (b) Customer Relationship Management
- (c) Supply Chain Management
- (d) All of above

✓Ans. : (d)

**Q.49** \_\_\_\_\_ describes the process of buying, selling, and /or exchanging of products and services through computer networks via electronic medium such as internet.

- (a) E-shopping
- (b) Electronic commerce
- (c) E-marketing
- (d) None of above

✓Ans. : (b)

**Q.50** \_\_\_\_\_ refers to e-commerce that is conducted entirely in a wireless environment.

- (a) Wireless Commerce
- (b) W-Commerce
- (c) Mobile commerce
- (d) None of above

✓Ans. : (c)