



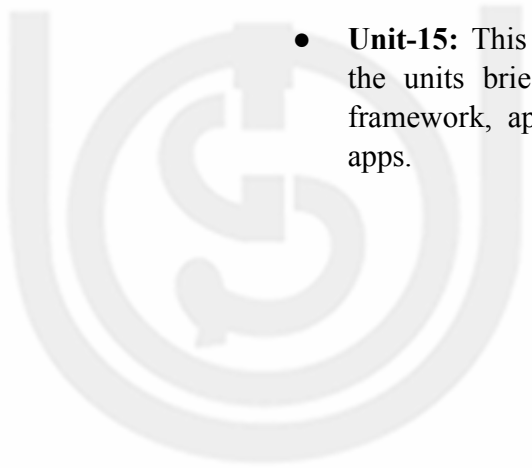
BLOCK 5
ONLINE PORTAL AND APPLICATION

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BLOCK 5 ONLINE PORTAL AND APPLICATION

This is the fifth and last block of the course “E-Commerce”. This block will familiarise you about the electronic retailing, aid of the internet in various services and application based sales and exchange of goods and services. This block is structured to make learners understand the usages of various online portals and apps for various types of services. The block on the theme “Online Portal and App: Business, Shopping and Services” comprises of three units, the detail of which is mentioned below:

- **Unit-13:** this unit explains the concept of e-shopping & e-tailing and how it is different from reationg, various advantages and disadvantages of e-retailing for both the buyers and retailers. The unit also explains the various e-tailing models along with e-tailing mix and the overview of e-tailing in Indian context.
- **Unit-14:** This unit explains the significance of the internet in various services such as financial services, travel services, auction services, learning, travel, publishing and entertainment industry etc.
- **Unit-15:** This unit makes the learners familiar with app based commerce. the units briefs about the concept behind app development, business framework, appropriate technology and marketing strategies for creating apps.



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UNIT 13 E-TAILING

Structure

- 13.0 Objectives
- 13.1 Introduction
- 13.2 E-tailing
- 13.3 E-tailing Models
- 13.4 E-retail Mix-Sale the 7Cs
- 13.5 E-tailing in India
- 13.6 Let Us Sum Up
- 13.7 Key Words
- 13.8 Answers to Check Your Progress
- 13.9 Terminal Questions

13.0 OBJECTIVES

After studying this unit, you should be able to:

- explain the concept of E-tailing;
- understand the advantages and disadvantages of E-tailing to the retailers and buyers;
- understand the models of E-tailing;
- understand the E-retail mix; and
- understand the E-tailing in India.

13.1 INTRODUCTION

E-shopping or Online Shopping is the process of buying goods and services from merchants who sell their products on the Internet. Finding a product online is much easier than looking for it in the local store. Electronic retailing (E-tailing) is the sale of goods and services through the Internet. It can include business-to-business (B2B) and business-to-consumer (B2C) sales of products and services. It requires companies to tailor their business models to capture Internet sales, which can include building out distribution channels such as warehouses, internet webpage, and product shipping centres. Notably, strong distribution channels are critical to electronic retailing as these are the avenues that move the product to the customer. It includes a broad range of companies and industries. However, there are similarities between most E-tailing companies that include an engaging website, online marketing strategy, efficient distribution of products or services, and customer data analytics.



Fig 13.1: E-tailing

Successful e-tailing requires strong branding. Websites must be engaging, easily navigable, and regularly updated to meet consumers' changing demands. Products and services need to stand out from competitors' offerings and add value to consumers' lives. Also, a company's offerings must be competitively priced so that consumers do not favour one business over another on a cost basis only. E-tailers need strong distribution networks that are prompt and efficient. Consumers cannot wait for long periods for the delivery of products or services. Transparency in business practices is also important, so consumers trust and stay loyal to a company

13.2.1 E-TAILING

Retail is the process of selling consumer goods or services to customers through multiple channels of distribution to earn a profit. Retailers satisfy demand identified through a supply chain. The term "retailer" is typically applied where a service provider fills the small orders of many individuals, who are end-users, rather than large orders of a small number of wholesales, corporate or government clientele. Thus, Retail is the sale of goods on a physical location where the seller and the buyer meet in person. Whereas e-tail is the sale of goods on the internet where the transaction happens in a digital environment. Various popular players of E-tailing are Amazon, Flipkart, Zomato, Swiggy, MakemyTrip etc, and for retailers are Walmart, Mcdonalds, Big Bazaar etc.

E-Tail Vs. Retail



E-Tail



Retail

Fig 13.2: E-Tail v/s Retail

E-tailing stands for E-retailing also known as e-retail as “*sales of goods and services via the internet or other electronic sources, for personal and household use by consumers*”.

The term E-Retailing was first developed in the European countries. It has both passive and interactive retail system while all e-tailing is generally limited to passive, air ticketing and other entertainment booking is designed in interactive system mostly. E-tailing has various features as stated below:

- Saves time and efforts.
- Convenience of shopping at home.
- Wide variety/range of products.
- Good discounts / lower prices.
- Get detailed information about the product.
- Easy comparison of various models/brands.

There are many types of E-tailers most popular of these two are:

1. **Pure Play (Virtual) e-retailers-** Retailers that only do the electronic transactions and do not have any physical outlet for the customers. For example- Amazon & Flipkart
2. **Brick and click (Click-and-mortar) e-retailers-** Retailers who do the both online and offline transactions i.e. through internet and physical outlets. For example, Dell.

E-tailing has various advantages as well as disadvantages both for there tailers as well as buyers as explained below:

Advantages of E-tailing for retailers:

1. **Location utility:** Location is utmost important for the conventional retailing process to provide convenience utility to its consumers. However, in e-tailing location is not important. Retailers and customers need internet for e-tailing and transaction can happen from anywhere from within the country or overseas.
2. **Less expensive:** As compare to organised retailing, e-tailing is less expensive as it saves wages of salesmen and premises cost and maintenance. These expenditures are low as compare to internet cost.
3. **High Reach:** Integration with customers is high in e-tailing as customers can be local, national and international. Through internet, e-tailers can reach to large audience.
4. **24*7 businesses:** The time utility for customers is high in e-tailing as customers can buy the products and services from anywhere and anytime.
5. **Feedback:** It's easy to manage customer relationship management in e-tailing on the basis of feedback of consumers.

Disadvantages of E-tailing for retailers

1. **Lack to infrastructure:** The issues of accessibility and connectivity of internet causes problems in functioning of e-tailing activities. Also, the initial investment cost is very high in e-tailing.
2. **Lack of technological expertise:** To start an online retailing project it is important to have technological expertise and not all retailers have it.
3. **Complex logistic management:** Intrinsic and extrinsic challenges increase the complexities in e-tailing logistics. Like cash on delivery increases the operational cycle, managing high rates of returns, poor logistic management in rural areas and problems in cross-nation shipments.
4. **Customers' expectations:** In terms of flexibility in delivery, detailed product descriptions, cost and security of delivery, flexible payment options sets high expectations of customers.
5. **Lack of personal touch:** The lack of face-to-face interaction, persuasion and handling the customers' query is a major disadvantage in e-tailing.
6. **High competition:** E-tailers have to compete with other e-tailers as well as the organised and unorganised retailers in the market that increase the competitions for them.

Advantages of E-tailing for buyers

1. Time utility as consumers can shop 24*7
2. Place utility as consumers can shop from anywhere
3. Convenience utility as consumers can shop from any mode via computer, laptops or mobile
4. Option utility as consumers can get wide range of option via e-tailing

Disadvantages of E-tailing for buyers

1. Customers may be uncertain regarding the quality of the products and services offered online
2. Fear regarding online fraud and loss of money
3. Every time not every product is available.
4. Lack of technological know-how

13.3 E-tailing Models

Two models of E-tailing are explained below:

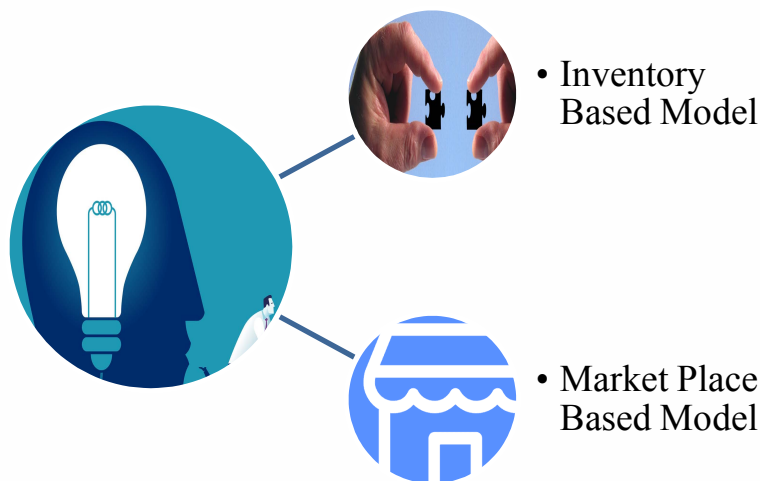


Fig 13.3: E-tailing Business Model

1. **Inventory based model:** According to the FDI policy in India, “Inventory model of e-commerce means an e-commerce activity where inventory of goods and services is owned by e-commerce entity and is sold to the consumers directly.” It includes the e-tailing activities where inventory of products and services is owned by e-tailers and it is directly sold to customers. The main feature of this model is end to end process i.e., from initiating from product purchase to managing logistics and finally dispatching the products. Example- Alibaba, Jabong.
2. **Marketplace based model:** According to the FDI policy guideline, “Marketplace model of e-commerce means providing of an information technology platform by an e-commerce entity on a digital and electronic network to act as a facilitator between buyer and seller.” This model provides a platform where buyers and sellers do the transactions in efficient, transparent and trusted environment. Here, buyers can compare the prices and accordingly place the orders to the authorized sellers on the website. Majorly, e-tailers like Amazon, Patym mall and Flipkart practice the marketplace-based model. For example, when buyer login to Amazon India and place an order to a registered seller, Amazon India act as a mediator here. Subsequently, the registered seller takes care of logistics and dispatching of the products to the customers.

Check Your Progress A:

1. What do you understand by pure play E-retailer?

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2. What are the disadvantages of E-tailing for retailers?

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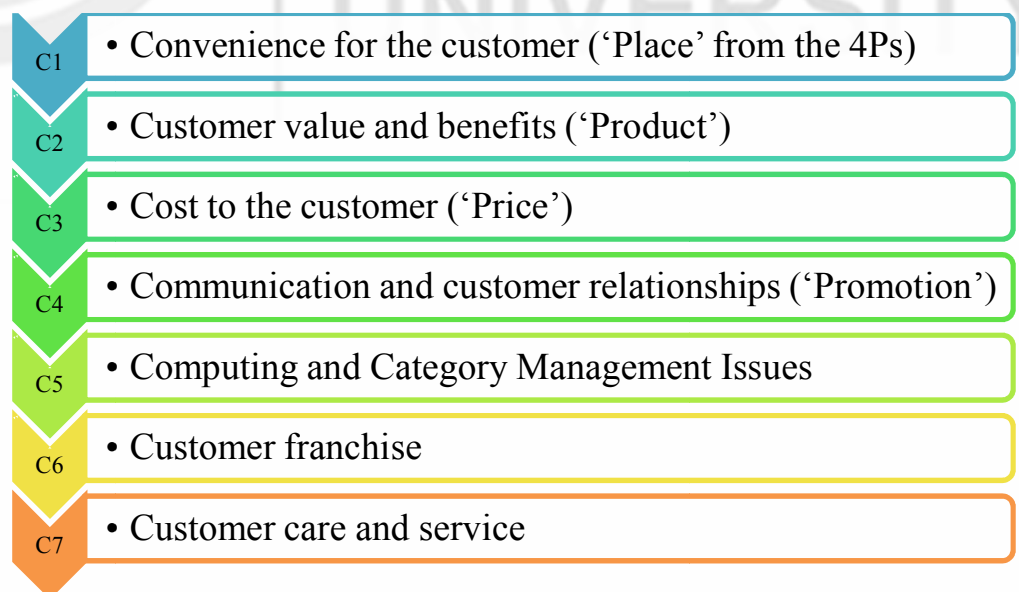
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3. What are the advantages of E-tailing for buyers?

4. What is Inventory based model?

13.4 E-RETAIL MIX- SALE THE 7Cs

E-retail mix is defined as the different techniques and tools e-retailers use to provide values for customers. The e-tailing mix is the combination of 7Cs and first four Cs are similar to the 4Ps proposed by E. Jerome McCarthy's (1960) i.e. Place, Product, Price and Promotion. In 1990 Lauterborn proposed 4 Cs namely Convenience for the customer; Customer value and benefits; Cost to the customer; and Communication. However, with paradigm shift, more Cs added in the list i.e., Customer relationships; Computing and category management issues; Customer franchise and Customer care and service. Customer relationship is emphasis on long-term relationship with consumers and follows continuous interaction with them. Therefore, customer relationship merged with communication and finally there are 7 Cs.



*Source: The authors, developed from McCarthy's (1960) 4Ps and Lauterborn's (1990) 4Cs.

Fig 13.4: E-Retail Mix- Sale the 7cs

The following table briefly describes **the 7Cs – the (E-) Retail Mix**.

C1: Convenience for the customer ('Place' from the 4Ps)

- Physical location
- Multi-channel options: browse the web, buy in store or *vice versa* – or buy on the web, return to the store for a refund
- Virtual location and ease of finding the website: registration with search engines, location in e-mails and links from associates
- Website design: connectivity; navigation; 'shelf' space allocation and ease of purchase.
- Layout: 'free-flow'; 'grid'; or 'free-grid'

C2: Customer value and benefits ('Product')

- Satisfactions wanted by customers
- Solutions to problems or good feelings
- Specify (sometimes design) products reflecting closeness to the customer and benefits that customers want
- Selecting the range of products offered for sale – assembled for target markets from diverse sources
- Wide and/or deep range – where the 'clicks' e-retailer can score relative to the 'bricks' retailer
- Content: describing a compelling offer of products clearly in customer value and benefits terms
- Customisation of products to match the wants of customer segments as closely as possible

C3: Cost to the customer ('Price')

- The real cost that customers will pay including transport, carriage and taxes
- Costs of Internet telephone access
- Customers' perceptions that prices should be cheaper online than in store

C4: Communication and customer relationships ('Promotion')

Communication is a two-way process also involving feedback from customers to suppliers, including:

- Marketing research surveys
- Public relations (PR)
- Direct mail
- E-mail
- Internet
- Offline advertising such as magazines and 'click here' sections of newspapers

- Online methods include banner ads and pop-ups (often incentivised); paid-for listings in search engines and directories; and affiliate programmes
- Atmospherics and Web atmospherics: visual (décor, colour management, video clips, 3D), oil factory (perfume and samples), touch (smooth and cool or soft and cuddly – communicated by visuals or samples) and oral (music). (But need to avoid long download times – ‘click here for broadband’).
- Customer relationships
 - In store sales representatives use verbal and non-verbal (body language) communication
 - Marketing database and loyalty schemes
 - The e-retailer can enhance product value using Customer Relationship Management (CRM) and data mining to tailor products specifically to individual customers.

C5: Computing and Category Management Issues

- Supplying the products that customers want, in the right sizes and quantities, at the right time and in the right place
- Efficient supply chains with computer network links between suppliers and retailers Minimising stocks and speed of response: QR or ECR
- Co-operation between suppliers and (e-) retailers aiming to improve the efficiency of satisfying customers whilst minimising stocks and costs. On the larger scale, this is ‘Category management’ (CM), the retailer/supplier process of managing categories as strategic business units
- Efficient logistics systems are an important component of Customer care and service

C6: Customer franchise

- Image, trust and branding – long-term investment in quality, corporate communications and Customer care and service
- Safeguards including fraud protection and dispute resolution
- Safe shopping icons, e.g. Webtrader

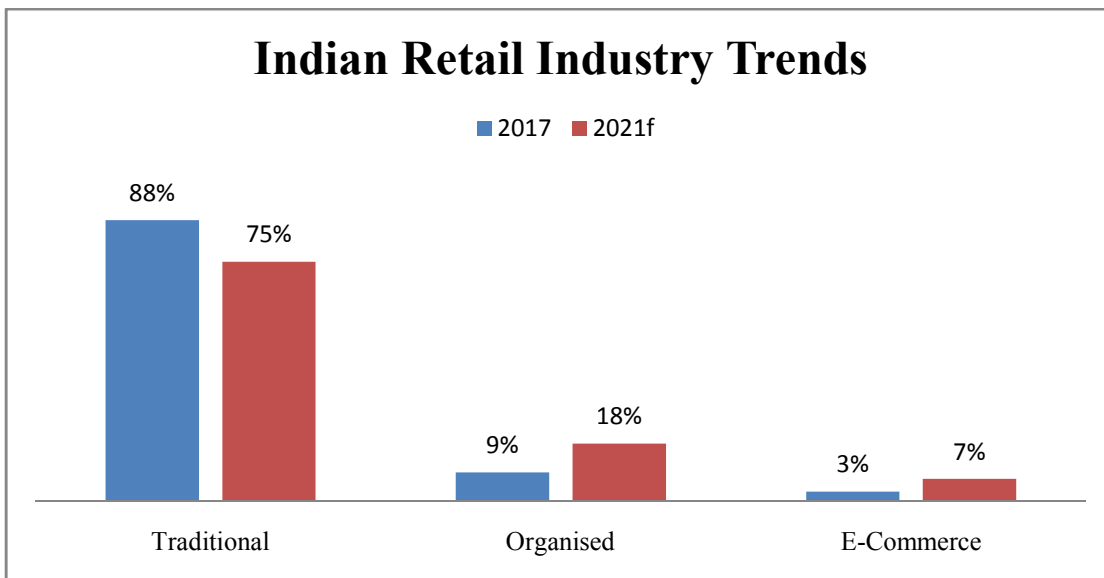
C7: Customer care and service

- Creating assortments at competitive prices in an accessible format
- Fast and reliable deliveries at times convenient to the shopper
- Availability of help; return and refund facilities
- For the ‘bricks’ retailer store personnel are crucial
- For the e-retailer click-through telephone help, bulletin boards and chat rooms make the experience more interactive and add community.

- Addressing customer concerns, particularly for credit card security, e.g., displaying the ‘padlock’ secure site logo.

13.5 E-TAILING IN INDIA

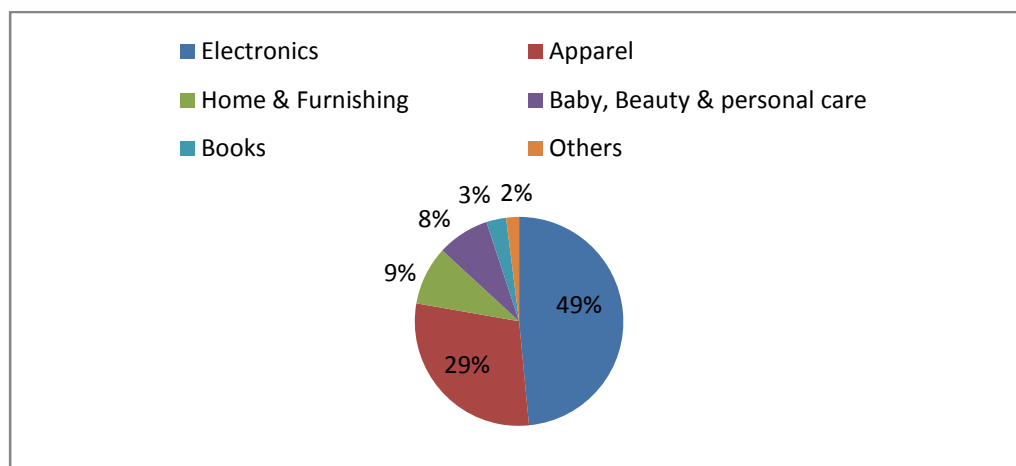
In India, e tailing has substantially grown and still penetrating in the market owing to internet accessibility and smart phone availability. In addition, e-banking services and digital wallets have fuelled the e-tailing trends in India. Hence, e-retailers are strategizing the approaches to gain the Indian market by Omni-channels method, celebrity endorsement, social media marketing and digital influencers.



*Source: KONNECTED to consumers; Economist Intelligence Unit, accessed in April 2018; Media articles; Indian Retail Industry: Growth, Trends, Challenges, and Opportunity, India Retailing, 16 November 2017; Deloitte analysis.

Fig 13.2: Indian Retail Industry Trends

As per the recent reports and analysis, the e-tailing market has been taken over by electronics and apparel. So, game changer events in E-tailing industry in India as are internet penetration, usage of mobile, advent of social commerce, adoption of technology, omni-channels and digital wallets. The following are the major categories of products sold in e-tailing.



*Source: Industry discussions, KPMG in India analysis

Fig 13.3: E-Retail Market by Value

Key players

Following are key E-tailers in India, as brief of all are explained below:

1. **Amazon:** Amazon is an American multinational conglomerate technology company based in Seattle, with 750,000 employees. It deals in e-commerce, artificial intelligence, digital streaming and cloud computing. Amazon was founded by Jeff Bezos in July 1994 in Bellevue. The company initially started as an online marketplace for books but later diversified in selling electronics, software, video games, apparel, furniture, food, toys, and jewellery. Amazon when talked in terms revenue is the largest internet company and one of the world's most valuable company. Amazon offer different products, some of which are as following –

- 1) Consumer Devices – Echo Devices, Fire Stick, Fire TV, Kindle E-Reader
- 2) Streaming Services – Amazon Prime, Amazon Music, Twitch and audible subsidiaries
- 3) Cloud Computing services – Amazon web Services
- 4) Artificial Intelligence – Alexa (virtual Assistance)
- 5) Online payment portal – Amazon Pay

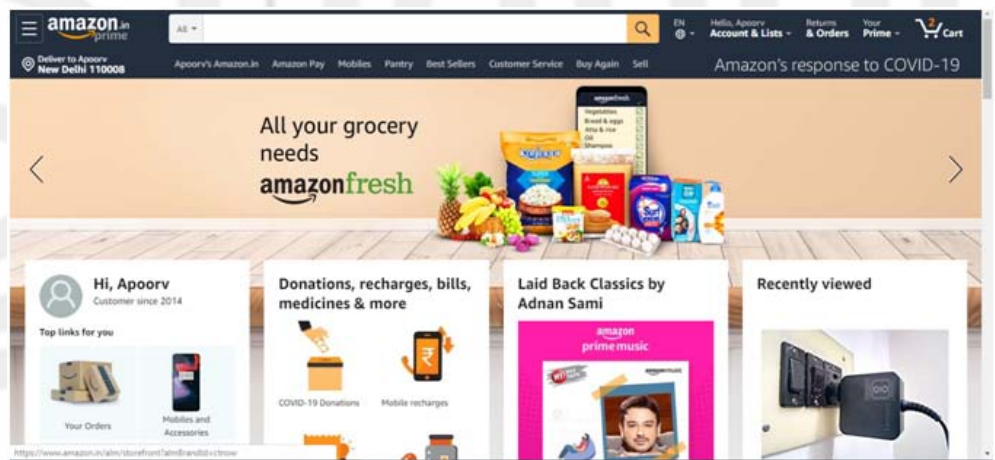


Fig 13.4: Amazon

2. **Flipkart:** Flipkart is an Indian e-commerce company based in Bengaluru, India. It was founded by Sachin Bansal and Binny Bansal in 2007, both ex-employee of Amazon. Just Like Amazon, the company started with focus on online book sales, and later expanding into other product such as consumer electronics, fashion, home essentials & groceries, and lifestyle products. Flipkart plays a dominant role in the sale of apparel after its strategic acquisitions of Myntra and Jabong.com. Its main rival is Amazon and Snapdeal. Flipkart also owns PhonePe, a mobile payment service. In August 2018, U.S.-based retail chain Walmart acquired a 77% controlling stake in bidding war with Amazon for US\$16 billion, valuing it at \$20 billion. Flipkart has launched video streaming named Flipkart Video in competition with Amazon Prime video services.

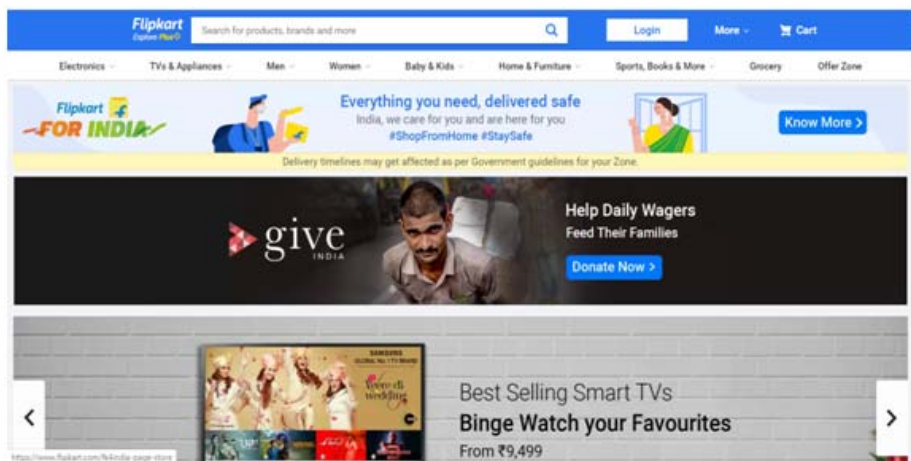


Fig 13.5: Flipkart

- Snapdeal:** Snapdeal is an Indian e-commerce company based in New Delhi, India. It was founded by Kunal Bahl and Rohit Bansal on 4 February 2010 as a daily deals platform, but later expanded in September 2011 to become an online marketplace and later became one of the India's largest market place. Over the years Snapdeal have done multiple number of acquisitions to strengthen their market intelligence, presence and upgrade their technological platform like mobile payment service freecharge.com. In April 2017 Snapdeal was actively in talks with Flipkart for the merger after Softbank, one of the major investors in Snapdeal wanted the company to merge. But finally, the deal was scrapped due to reservation on Flipkart's terms by other investors. This breakdown of deal was followed by Snapdeal's founders taking a decision to continue operating Snapdeal as an independent company with Snapdeal 2.0 as their new version and vision.

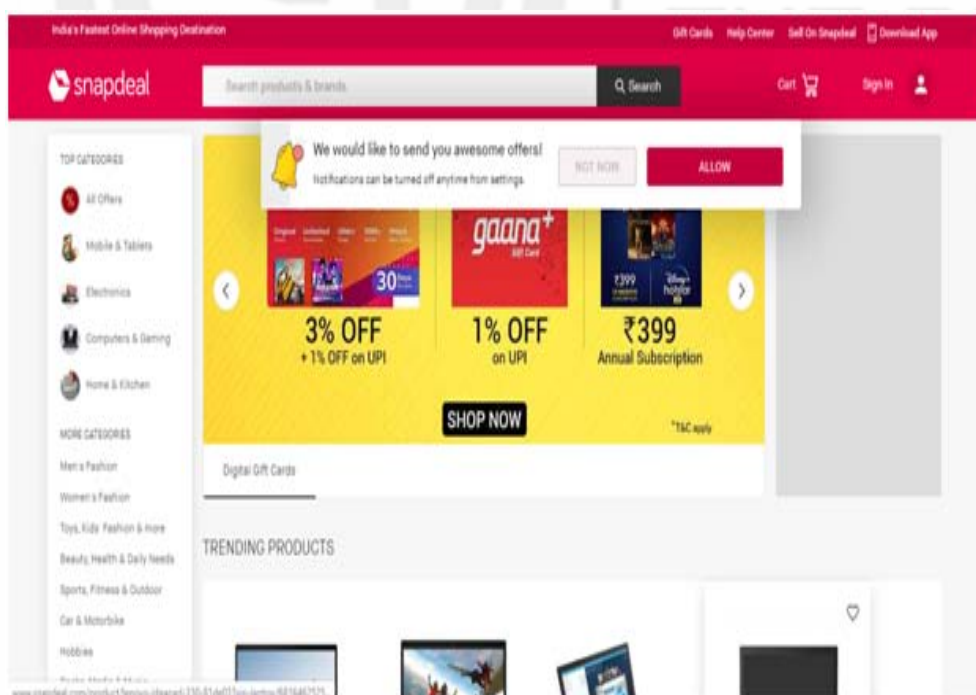


Fig 13.6: Snapdeal

- IndiaMART:** IndiaMART InterMESH Ltd. is an Indian e-commerce company that provides B2C, B2B and customer to customer sales services via its web portal. The company has headquarter in Noida, Uttar Pradesh, India. The group was founded in 1996 by Dinesh Agarwal and Brijesh Agrawal. Its main rival is Alibaba, a Chinese giant which deals in similar business model. Over the last 10 years, IndiaMART has become the largest e-commerce platform for businesses with about 60% market share. It handles more than 95,000 product categories ranging from machine parts, electrical components, medical equipment and textile products to cranes.

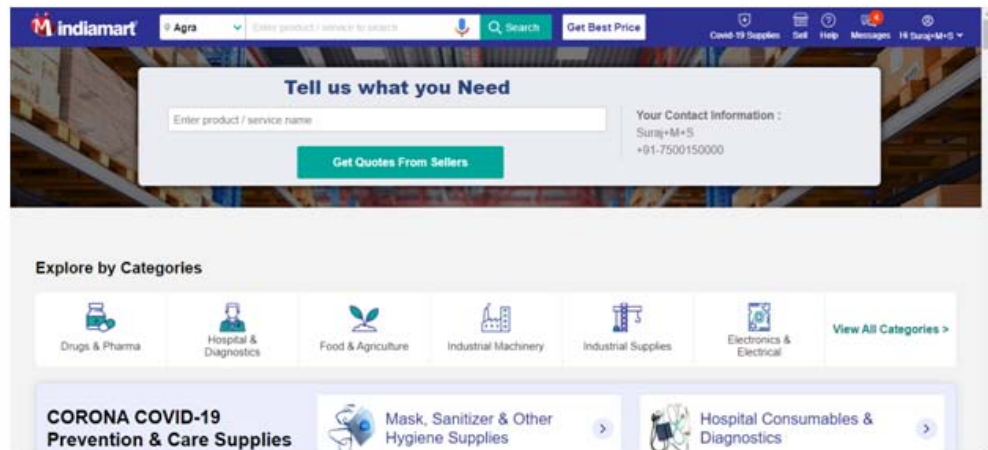


Fig 13.7: IndiaMART

- Bookmyshow.com:** BookMyShow is the leading show ticketing portal and retailer in India. Bookmyshow is operated by Bigtree Entertainment Private Limited. Bigtree Entertainment Pvt Ltd. was founded in 1999 by Ashish Hemrajani. In 2007, sensing growth of multiplexes and the increased popularity of plastic money, Ashish launched BookMyShow. Bookmyshow instantly became a brand and was a quick success taking the market by storm, bringing Cinema biggies like PVR, INOX and Cinepolis on the portal. Again, to gain early mover advantage Bookmyshow mobile app was launched, foreseeing consumers favouring mobile over computer. Now Bookmyshow is the largest ticketing platform, offering tickets for movie, games, live events, plays and concerts. BookMyShow has expanded its operations to New Zealand, UAE, Indonesia and Sri Lanka.



Fig 13.8: Bookmyshow.com

- Firstcry:** FirstCry is an Indian online store which deals in baby product retailing. Firstcry was founded by Supam Maheshwari in 2010, when he

realizes choices for baby products in India online were quite limited and he used to buy a lot of them for his son only on his business trips abroad. Thus, he discovered an opportunity for such platform and conceptualized FirstCry.com. He is also the founder of Xpressbees which today is one of the largest logistic companies in India. FirstCry acquired BabyOye in 2016, a brand that was owned by the Mahindra Group. The merged entity now does business under the name - FirstCry.com, a FirstCry Mahindra Venture. Firstcry also operates total of 380 offline stores and franchises stores. It is Asia's largest online shopping store for kids & baby products.

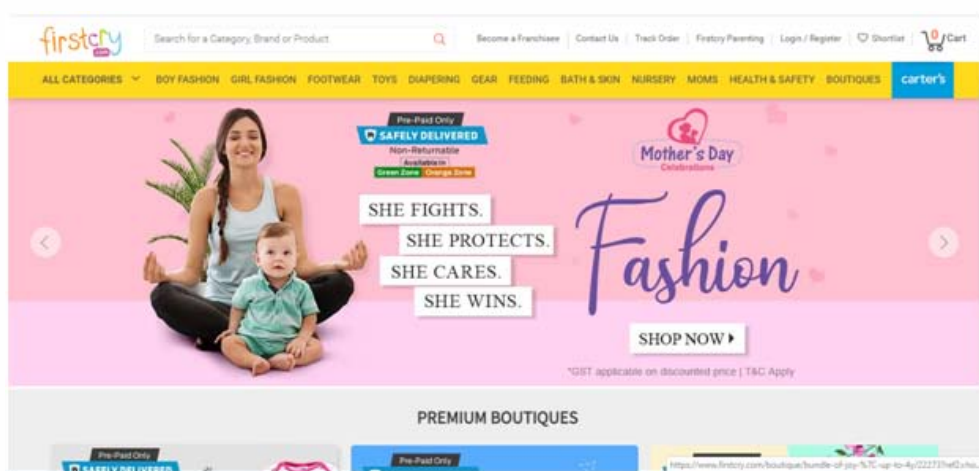


Fig 13.9: Firstcry

7. **Paytm Mall:** Paytm is a Noida based Indian e-commerce payment portal and financial technology company. One97 Communications parent company of Paytm was founded in August 2010 by Vijay Shekhar Sharma. In February 2017, Paytm launched its Paytm Mall app which use B2C model which allows consumers to shop from registered sellers. To ensure customer trust and quality, product is passed from registered sellers to Paytm-certified warehouses and channels. Paytm Mall has set up various fulfilment centres across India and ensure fast deliveries partnered with various couriers. Paytm Mall app which use B2C model which allows consumers to shop from registered sellers



Fig 13.10: Paytm Mall

8. **Alibaba Group:** Alibaba Group Holding Limited is a Chinese multinational technology company which exclusively deals in e-

commerce, retail, Internet, and technology. Jack Ma along with his team of 17 friends and students found Alibaba.com on 4th April 1999. The company operates largest B2B (Alibaba.com), C2C (Taobao), and B2C (Tmall) marketplaces in the world. Its online sales and profits surpassed all US retailers (including Walmart, Amazon, and eBay) combined since 2015. Just like Amazon, Alibaba also operates in different field as following –

- 1) E-Commerce and Retail Service Platforms
- 2) Internet Services
- 3) Cloud Computing and artificial intelligence technology
- 4) Financial technology and online payment platforms
- 5) Entertainment Services

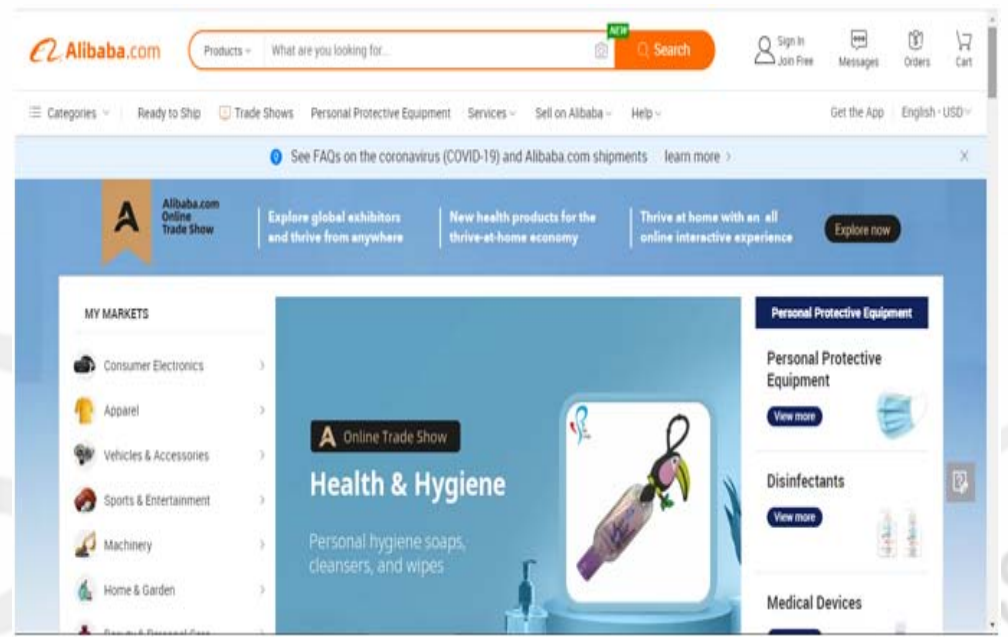


Fig 13.11: Alibaba

9. **E-bay:** E-bay is an American multinational e-commerce corporation operating in about 33 countries as of 2018 that facilitates C2C and B2C multi-billion-dollar sales through its website. It is based in San Jose, California and was founded by French-born Iranian-American computer programmer Pierre Omidyar in 1995. People buy and sell a variety of goods and services worldwide on E-Bay website which is an online auction and shopping website. E-bay is known for various acquisitions, some of major are Paypal, Craigslist, Skype, stubHub etc.

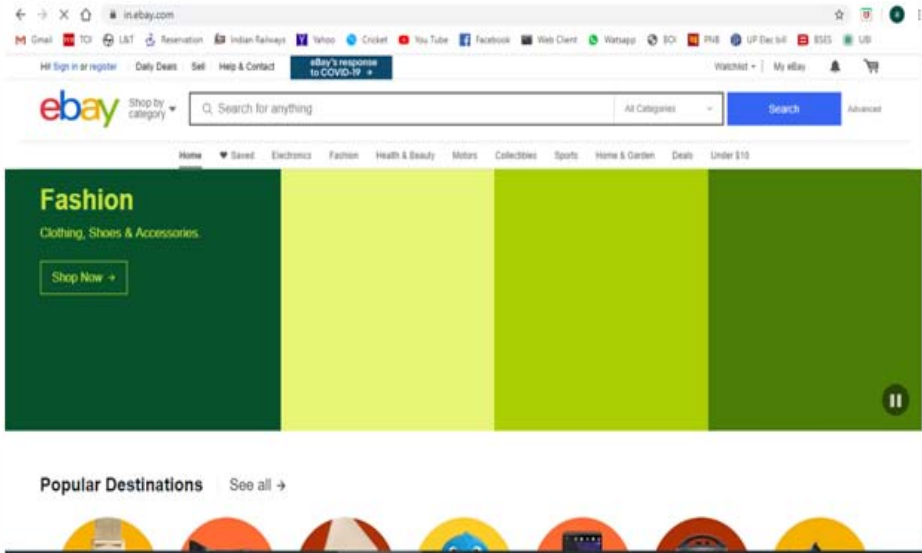


Fig 13.12: E-bay

Check Your Progress B:

1. Fill in the blanks:

- i) is an online auction and shopping website.
- ii) Alibaba Group Holding Limited is a company which exclusively deals in e-commerce, retail, Internet, and technology.
- iii) Paytm Mall has set up various fulfilment centres across India and ensure.....
- iv) Amazon initially started as an online marketplace for but later diversified in selling electronics, software, video games, apparel, furniture, food, toys, and jewellery.
- v) E-retail mix is defined as the different techniques and tools..... use to provide values for customers.
- vi) The e-retailer can enhance..... using Customer Relationship Management (CRM).

2. What are the various ways of communication and customer relationships components of 7C's.

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3. What are the 7C's of retail mix?

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13.6 LET US SUM UP

Electronic retailing (E-tailing) is the sale of goods and services through the Internet. E-tailing can include business-to-business (B2B) and business-to-consumer (B2C) sales of products and services. It requires companies to tailor their business models to capture Internet sales, which can include building out distribution channels such as warehouses, Internet webpages, and product shipping centres. Notably, strong distribution channels are critical to electronic retailing as these are the avenues that move the product to the customer. Electronic retailing includes a broad range of companies and industries.

There are two types of e-tailing model pure play e-retailers and brick and click e-retailers. Pure play e-retailers only do the electronic transactions whereas, brick and click e-retailers do transactions in both online and offline mode. Various Advantages of E-tailing for retailers are location utility, less expensive, high Reach, 24*7 business, feedback. Disadvantages of E-tailing for retailers are lack of infrastructure, lack of technological expertise, complex logistic management, customers' expectations, lack of personal touch, high competition etc. Advantages of e-tailing for buyers are time utility, place utility, convenience utility and option utility. Disadvantages of E-tailing for buyers are customers may be uncertain regarding the quality of the products and services offered online, fear regarding online fraud and loss of money, every time not every product is available, lack of technological know-how etc.

E-tailing has two types of business models: Inventory based and marketplace based model respectively. Inventory based model includes the e-tailing activities where inventory of products and services is owned by e-tailers and it is directly sold to customers, and Marketplace based model provides a platform where buyers and sellers do the transactions in efficient, transparent and trusted environment. Here, buyers can compare the prices and accordingly place the orders to the authorized sellers on the website.

E-retail mix is defined as the different techniques and tools e-retailers use to provide values for customers. In 1990 Lauterborn proposed 4 Cs namely Convenience for the customer; Customer value and benefits; Cost to the customer; and Communication. However, with paradigm shift, more Cs added in the list i.e., Customer relationships; Computing and category management issues; Customer franchise and Customer care and service. Customer relationship is emphasis on long-term relationship with consumers and follows continuous interaction with them. Therefore, customer relationship merged with communication and finally there are 7 Cs.

In India, e tailing has substantially grown and still penetrating in the market owing to internet accessibility and smart phone availability. In addition, e-banking services and digital wallets have fuelled the e-tailing trends in India. As per the IBEF 2018 report, India will reach to US \$ 200 billion market in 2034 which is more than USA's market. Hence, e-retailers are strategizing the approaches to gain the Indian market by Omni-channels method, celebrity endorsement, and social media marketing and digital influencers.

13.7 KEY WORDS

Brick and click (Click-and-mortar) e-retailers- Retailers who do the both online and offline transactions i.e., through internet and physical outlets. For example, Dell.

E-tailers: E-tailers are simply retailers who use the internet to sell their goods/services to their customers, rather than actual stores.

E-tailing: E-tailing also known as electronic retailing is the selling of retail goods on the Internet. It is synonymous with business-to-consumer (B2C) transactions.

Pure Play (Virtual) e-retailers- Retailers that are only do the electronic transactions and do not have any physical outlet for the customers. For example- Amazon & Flipkart.

Retailers: Retailer is known as any person or business that sells goods. They don't manufacture their own items typically. They purchase goods from a manufacturer or a wholesaler and sell these goods to consumers in small quantities.

13.8 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress B

1. Fill in the blanks

- i) E-bay
- ii) Chinese multinational technology
- iii) fast deliveries partnered with various couriers.
- iv) books
- v) e-retailers
- vi) product value

13.9 TERMINAL QUESTIONS

1. What is E-tailing? Explain its advantages for retailers as well as buyers.
2. State the disadvantages of E-tailing for the retailers and buyers respectively.
3. Give the brief of E-tailing trends in India.
4. Explain the E-tailing models.
5. Explain the 7C's of retail mix.
6. Brief on the E-tailing key players in India.



Note

These questions are helpful to understand this unit. Do efforts for writing the answer of these questions but do not send your answer to university. It is only for your practice.

UNIT 14 E-SERVICES

Structure

- 14.0 Objectives
- 14.1 Introduction
- 14.2 Meaning of E-Services
- 14.3 Benefits of E-Services
- 14.4 FinTech
 - 14.4.1 Technologies used by FinTech
 - 14.4.2 Increased FinTech product offerings
- 14.5 eFinancial Services
- 14.6 eTravel Services
 - 14.6.1 Services offered under etravel
- 14.7 eAuction Services
 - 14.7.1 Examples of eAuction Services
- 14.8 eLearning
- 14.9 Virtual Communities and Web Portals
- 14.10 Online Learning
- 14.11 ePublishing Services
 - 14.11.1 Online Publishing Strategies
 - 14.11.2 Online Publishing Approaches
 - 14.11.3 Copyright Issues
- 14.12 Online Entertainment
 - 14.12.1 TV Online
 - 14.12.2 Book
 - 14.12.3 Radio
 - 14.12.4 OTT
- 14.13 Let Us Sum Up
- 14.14 Key words
- 14.15 Terminal Questions

14.0 OBJECTIVES

After studying this unit, you should be able to:

- understand the concept of E-services and their various benefits;
- know about FinTech and various technologies used by it;
- describe the significance of internet in financial services;

- describe the significant patterns in the online travel administrations industry today;
- explain the significance of internet in auction services;
- highlight the aid of internet in learning;
- explain the significance of internet in publishing services; and
- describe the role of the internet in the entertainment industry.

14.1 INTRODUCTION

With the expanding demand of web-based business, more organizations are currently searching for better ways and means to upgrade their reasonable worth. Accordingly the electronic service industry is also growing. The new type of online business website architecture is moving towards the digitalization of numerous enterprises and the business association is furthermore realizing on their business engagements through it.

The time have gone when expansion and implementation required hundreds of years for execution, with introduction of technology and communication, there are a lot of alternatives for promotion, in reality, even a single individual can run an organization with simply a limited resources. The service industries (more formally termed as tertiary sector of industry' by economists) engross the provision of services to businesses as well as final consumers. Such services take account of accounting, tradesman ship (like mechanic or plumber services), computer services, restaurants, tourism, etc. Thus, service industries comprise a lot of other areas such as banking, communications, wholesale and retail trade, all professional services such as engineering, computer software development, and medicine, non-profits economic activities, all consumer services, and all government services, including defence and administration of justice etc.. This unit discusses in detail about various E-services which in real sense plays a pivotal role in technological era.

14.2 MEANING OF E-SERVICES

E-service is also known as an online service refers to any information and service provided over the Internet. These services not only allow subscribers to communicate with each other, but they also provide unlimited access to information. These services may be free or paid. Thus, E-Service comprises of the online services available on the Internet, whereby a suitable transaction of buying and selling is achievable, as opposed to the long-established websites, whereby only explanatory information are available, and no online transaction is made possible. Thus, e-service may also include e-Commerce, although it may also include non-commercial services (online),

Online service delivery is an effective way to build close relationships with customers, partners, and the public while simultaneously cutting costs and reducing delays. Increasingly, organizations across a number of sectors are

offering external-facing online services. The three main components of e-services are the service provider, service receiver and the channels of service delivery respectively.

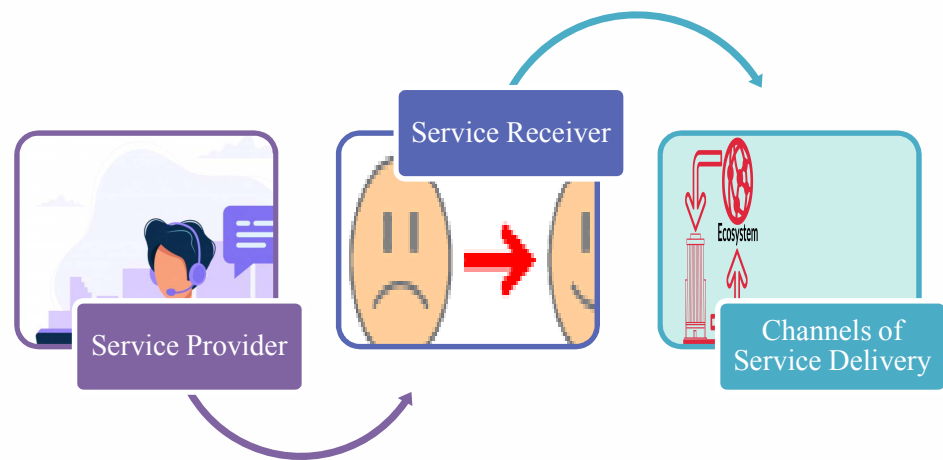


Fig 14.1: Components of E-services

For example, as concerned to public e-service, public agencies are the service provider and citizens as well as businesses are the service receiver. The channel of service delivery is the third requirement of e-service. Internet is the foremost channel of e-service delivery whereas other classic channels (e.g. telephone, call centre, public kiosk, mobile phone, television) are also well thought-out. There are various kinds of E-services such as;

- **Bookings systems:** Bookings for restaurants or reservations for a hotel can be managed online
- **Training courses:** Courses for training companies can be offered online etc.
- **Electronic governance or E-governance:** The four types of e-government services are Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G). Thus, Electronic governance or e-governance is the application of IT for delivering government services, exchange of information, communication transactions, integration of various stand-alone systems between governments to citizen (G2C), government-to-business (G2B), government-to-government (G2G), government-to-employees.

14.3 BENEFITS OF E-SERVICES

There are assured benefits of using online services and these services which can give organisation an edge in making available numerous benefits both tangible and intangible in nature.



Source: Indian Government Portal GOV.in

Fig 14.2: State Portal of Assam

Figure 14.2 is the State Portal of Assam, developed with an objective to enable a single window access to information and services being provided by the various Indian Government entities. This Portal is designed and developed by National Informatics Centre (NIC), Ministry of Electronics & Information Technology, Government of India. We can easily list a number of benefits e-services can provide to vendors and consumers and could be fruitful in both the aspects such as;

- Accessing a greater customer base
- Accessing a greater customer base.
- Alternative communication channel to customers
- Alternative communication channel to customers
- Broadening market reach
- Broadening market reach.
- Cost savings.
- Enhancing perceived company image
- Enhancing transparency
- E-services can provide flexibility to Save your changes and return later to complete your submission.
- Faster delivery of products.
- Gaining competitive advantages
- Global access, 24 hours a day, 7 days a week.
- Improved client service through greater flexibility.
- Increased professionalism.
- Increasing services to customers
- Less paper waste.
- Lowering of entry barrier to new markets and cost of acquiring new customers
- Lowering of entry barrier to new markets and cost of acquiring new customers.

- Online Services mean you complete the forms electronically, giving you more flexibility and control.
- Online Services or e-services are secure and convenient.
- Opportunities to manage your business from anywhere in the world.
- Potential for increasing Customer knowledge
- You can share your Username and Password with your trustees
- Independent Examiner or someone else who makes changes or submit the returns on your behalf.

14.4 FINTECH

Finance is seen as one of the industry's most vulnerable to disruption because financial services, are much like publishing, which are made of information rather than concrete goods.

FINTECH is a hybrid of the terms "finance" and "technology" and refers to any business that uses technology to enhance or automate financial services and processes. This is a broad and rapidly growing industry serving both consumers and businesses. Financial technology is the technology and innovation that aims to compete with traditional financial methods in the delivery of financial services. It is an emerging industry that uses technology to improve activities in finance. The tools and applications of FinTech affect almost every person who wants to make financial transactions. With the use of these services, consumers find easy-to-use peer-to-peer (P2P) and digital payment solutions to transfer money across regional and national borders.

The FinTech applications for internet business will permit retailers to catch a major portion of FinTech items deals. Expectations are that by 2040, practically all retail buys (95%) will be made on the web. On the off chance that these forecasts materialize, the worldwide retail web-based business and it will grow immensely. A major piece of the advantages of internet business for retailers will come from the online deals and acquisition of web-based business monetary administrations. It is an emerging industry that uses technology to improve activities in finance. The use of smartphone for mobile banking, investing, borrowing services, and crypto currency are examples of technologies aiming to make financial services more accessible to the general public.

14.4.1 Technologies Used By FinTech

Within the financial services industry, some of the used technologies include artificial intelligence (AI), big data, robotic process automation (RPA), and blockchain. A brief about all of these technologies in FinTech is explained below:

1. **Artificial Intelligence:** Artificial Intelligence is a general term for many different technologies. In terms of the "FinTech" industry, AI is used in various forms. AI algorithms can be used to predict changes in the stock market and give insight into the economy. AI is

used to provide insight on customer spending habits and allows financial institutions to better understand their clients.



Fig 14.3: Artificial Intelligence

- 2. Chatbots:** A chatbot is a software application used to conduct an on-line chat conversation via text or text-to-speech, in place of providing direct contact with a live human agent. A chatbot is a type of software that can automate conversations and interact with people through messaging platforms. Chatbots are another AI-driven tool that banks and FinTech industries are using these days to help with customer service.



Fig 14.4: Chatbots

Deploying a chatbot saves time, money and resources. Improve Customer experience by providing faster resolution and better customer service. Thus also helps considerably in reducing operational cost.

- 3. Big Data:** Big Data is another technology that financial institutions can utilize. In the finance sector, big data can be used to predict client investments and market changes and create new strategies and portfolios.

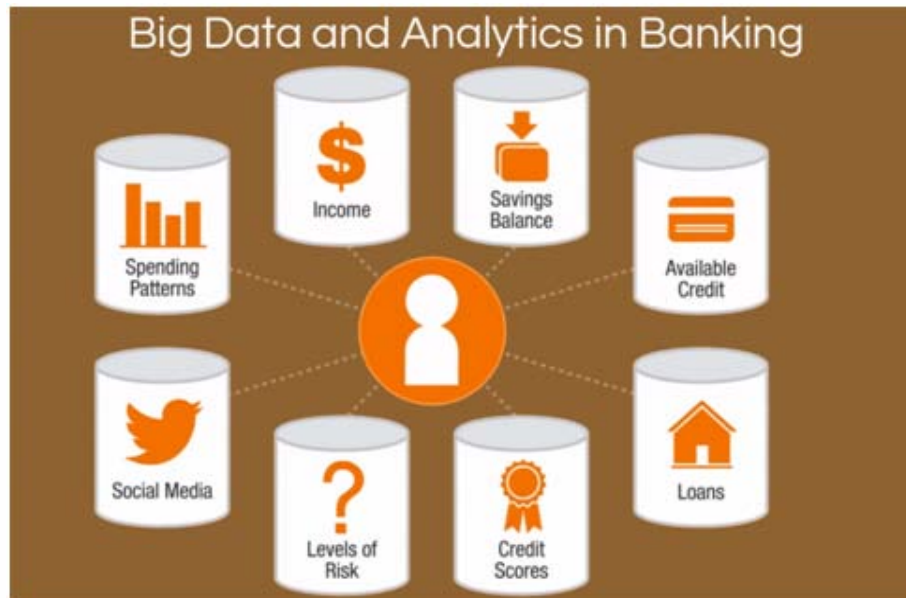


Fig 14.5: Big Data Analytics in Banking

Big Data can be used to analyze customer spending habits and therefore improve fraud detection. Big Data helps banks create segmented marketing strategies and can be used to optimize the operations of a company.

4. **Robotic Process Automation:** Robotic Process Automation is an artificial intelligence technology that focuses on automating specific repetitive tasks. In terms of FinTech, RPA is used to perform manual tasks that often are repetitive and completed daily. RPA helps to process financial information such as accounts payable and receivable more efficiently than the manual process and often more accurately. RPA can be used to increase the productivity of the financial company.
5. **Blockchain:** Blockchain is another financial technology that is being used in the industry. Out of all the "FinTech" technologies, blockchain was developed for the purposes of finance. The main feature of Blockchain in financial services is decentralization where it is not required to trust a third party to execute transactions. Though blockchain is still an emerging technology, many companies recognize the impact that it will have and are investing accordingly. In a nutshell, FinTech is the root of innovation operating at the intersection of financial services and technology.

Other forms of FinTech technologies act to supplement and enhance existing financial services. These include services such as transferring funds between banks by companies such as Plaid (company) and augmenting payroll services for consumers by companies such as Clair.

14.4.2 Increased FinTech Product Offerings

One incredible utilization of online business is to offer monetary types of assistance that broaden the things offered by banks. FinTech organizations may offer normal financial administrations in addition to different administrations, for example, exchanging unfamiliar money trade (Forex),

ventures, and protection. This is only the beginnings of a significant change brought about by the effective use of online business on banking and account. Here are some alternate ways that FinTech and web-based business influence one another:

1. **Advanced currency and crypto currency:** Actual money is being resigned in numerous countries to be supplanted by computerized adaptations of cash. This may move to digital money at last for its additional security assurances and handiness.
2. **Lasting digital archive records:** Blockchain innovation, which gets from cryptographic money applications, is currently used to make lasting encoded records of monetary exchanges that are public. There will be no requirement for people to keep any records/receipts when they can get to these perpetual records on the web. The utilization of blockchain innovation can decrease misrepresentation.
3. **Man-made brainpower and Big data mining:** Man-made brainpower (AI) is as of now being applied to examine Big Data and search for designs. Online retailers can lead to cross-reference buying movement with other Big Data measurements to foresee practices. Additionally, extortion can likewise be diminished by AI mining of Big Data to acquire bits of knowledge about examples of criminal conduct to help forestall it.
4. **Shared transactions:** Shared frameworks have just advanced that inter mediate the customary FinTech structures. Models are distributed loaning, crowd funding, and available to be purchased by-proprietor (FSBO) land exchanges. At the point when an immediate, individual to-individual, association is hardly made there is no requirement for middle people.
5. **Versatility:** Most online buyers routinely utilize a cell phone for web-based business. Entrepreneurs can utilize a cell phone for bank card buys with the assistance of a straightforward connection that is utilized to peruse a bank card. The framework sends the exchange over the portable organization for approval. This administration is helpful, the exchange charges are exceptionally serious, and there are no month to month expenses. It is anything but difficult to pursue this kind of administration for those with a dealer account on PayPal and other monetary frameworks.
6. **Personalization:** Utilizing AI chatbots for client assistance and complex information examination, by applying AI calculations to Big Data, it is conceivable to customize each client's experience. Additionally AI based frameworks find out the long run individual requirements. This makes it simpler to have the option to more readily address these requirements later on and envision an individual's interests. The area of monetary assistance and Fin Tech items are converging with online business. The conventional actual limits of physical retail locations have vanished on the web. On the web, it is similarly as simple to purchase protection from a significant retail location all things considered from a protection

organization. Utilizing AI for client assistance replaces the requirement for an enormous human staff of trained professionals. The improvement in advanced preparing of complex exchanges utilizing blockchain innovation implies that a lot more things will be sold by online retailers, including things like homes and monetary items.

14.5 eFINANCIAL SERVICES

Financial services refer to economic services provided by various financial institutions that deal with the management of money. It is an intangible product of financial markets like loans, insurance, stocks, credit card, etc. As we know that financial services are the economic services provided by the finance industry, which encompasses a broad range of businesses that manage money, including credit unions, banks, and credit-card companies. Thus, financial services are products of institutions such as banking firms, insurance companies, investment funds, credit unions, brokerage firms, and consumer finance companies.

With the advent of technology, the prefix ‘e’ has been added just to facilitate customer in a more agile way. It has been revolutionary in how internet business impacts banking. E-financial is a valuable online resource for finance, banking, accounting, and insurance domain. It is a key component of the financial system that facilitates financial transactions in an economy.

E-Financial services are an essential tool for economic growth as it brings together the one who needs funds and those who can supply funds. Financial services act as a barrier against risk arising from various unforeseen activities by insuring people against losses. These services are consumer-oriented as these are designed and provided in accordance with the needs of customers.



*Source: <https://financialservices.gov.in>

Fig 14.5: E-Financial Services

The mandate of the Department of Financial Services covers the functioning of Banks, Financial Institutions, Insurance Companies and the National Pension System. The Department is headed by the Secretary (FS) who is

assisted by three Additional Secretaries (AS), seven Joint Secretaries (JS), one Economic Advisers (EA) and a Deputy Director General (DDG).

14.6 eTRAVEL SERVICES

With the growing number of internet and smartphone users, the industry has progressed, and like any other online business it is shifting its focus to mobile. Web based business has changed the entire idea of movement and the travel industry. An e-travel in a layman term is an action that covers the complete travel business world on the Internet (mainly travel websites). The use of these travel websites have immensely changed the way people used to plan their travel.

Table 14.1: FAQ related to E-travel Portal

How do E-travel companies provide hotel bookings? Do they work in real time? Do they customize software for every hotel?

This e-travelling aggregator is also known as an OTA (online travel Agent). They invest a lot of money in keeping their search in Google or other search engine at highest (Big SEO type). As far as the hotelier which make their accounts on to this OTA's (profile), where they can add their images and data such rooms and the rates for the rooms. There are two system working on their end

-Front end (where any customer can Book rooms)

-Extra net (where the hotel owner can see the bookings which made by customer on the front).

Now as soon as customer made a booking then it will remove 1 room from the extra net and only shows the remaining room at the front end, so when all rooms are sold it will not show at the front. This works in real time and can customise discounts/packages (Like complimentary breakfast or pickup - drop off facility)

Over all e-Travel services have changed lot many things and bring about some very important changes. It also signifies the following:

- Penetration of credit card usage on mobile phone is higher than on desktop.
- Initial discovery rate is higher on mobile as mobile is the first point of contact for the internet for a lot of people.
- Mobile usage is relatively higher on weekends.
- Other major trend of online travel industry is the interest of consumers in deals and packages.

Travel organizations would now be able to contact their worldwide crowd settling down anyplace on the planet and effectively counts their evaluating with rivals to empower them to offer their own clients the most ideal alternatives.

14.6.1 Services Offered Under E-Travel

eTravel offers multiple services like cruise, hotels, flights, cars making it an ideal system for all booking requirements. eTravel offers user friendly web system to book travel or reservations with ease

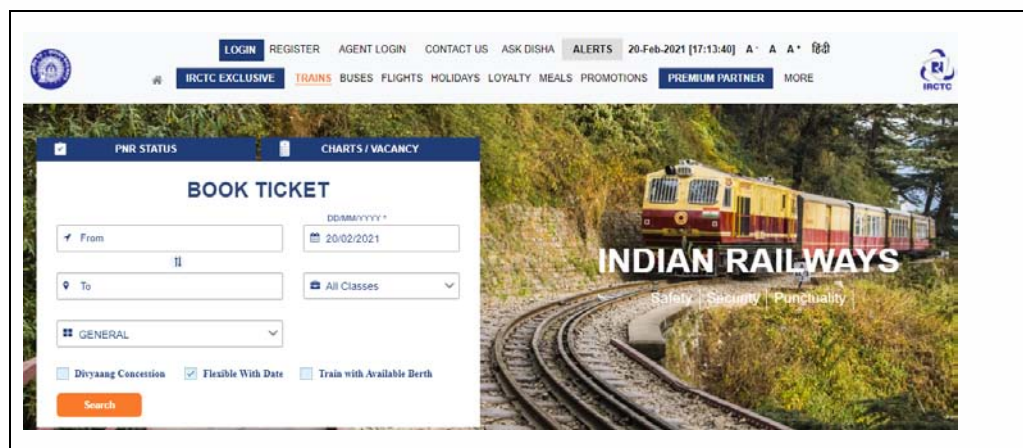
Below are some of the advantages of the online services in travel industry:

1. **Online booking:** Clients are not any more needed to visit travel agents. The entire booking framework is online with a doable instalment framework. Each framework works independently however the mix of this set-up is assisting with building and increment business.
2. **Overseeing recessions:** The web-based business industry has incredibly influenced downturns. A downturn is the time of misfortune that goes on for about half year. Online business innovation has presented the fast recuperation of downturn through its optimal answers for the issues that emerge.
3. **Computerization and networking:** GPS is perhaps the best innovation that encourages you in the business of movement and the travel industry. On the off chance that you'll look into any of the transportation administrations, internet business is the one thing that is assisting you with associating and offer the best administrations to the customers.
4. **Extra global market:** Web based business innovation gives you better skill about the extra market. The business movement is not restricted to a nation or a city it is all around the world focusing on its clients. Individuals would now be able to book their excursions to the extraordinary objections from anyplace, for example, their office or even the solace of their own homes.
5. **Ease of accessibility:** The technique cycles of business are currently as simple as connecting with the market. The travel planners would now be able to become more acquainted with the contenders and plan their business appropriately. Aside from the mounds of data, it gives to the simplicity of availability to the clients and contender conduct. It makes it all simple for individuals to interface and become together.

Table 14.4: Case Study of IRCTC



Indian Railway Catering and Tourism Corporation (IRCTC) are an Indian public sector undertaking that provides ticketing, catering, and tourism services to the Indian Railways. It was initially wholly owned by the Government of India, as a subsidiary of the Indian Railways, and operated under the administrative control of the Ministry of Railways, but now the company has been listed on the National Stock Exchange since 2019, with the Government continuing to hold majority ownership. IRCTC website is amongst the most viewed web-sites in the world, rankings under 750 top sites worldwide and under 50 top sites in India. On an average, 4.15 lakhs tickets are booked daily.



14.7 e-AUCTION SERVICES

eAuctions are online, real-time dynamic negotiations between a buying company and a number of pre-qualified suppliers who compete directly against each other to win the right to supply the specific goods or services that have clearly defined specifications for design, quality, quantity, delivery and related terms and conditions.

Utilizing eAuctions enable streamlining procurement process, resulting in increased savings that reflects directly on bottom-line. So, this not only saves money on products and services but also saves valuable time to use on creating more value for instance, sourcing new suppliers. The advantages of using eAuctions are manifold. Some of its advantages are, Time Savings, Cost Savings, Achieving a Uniform Buying and Negotiation Process, Greater Market Transparency etc. There are two types of eAuctions:

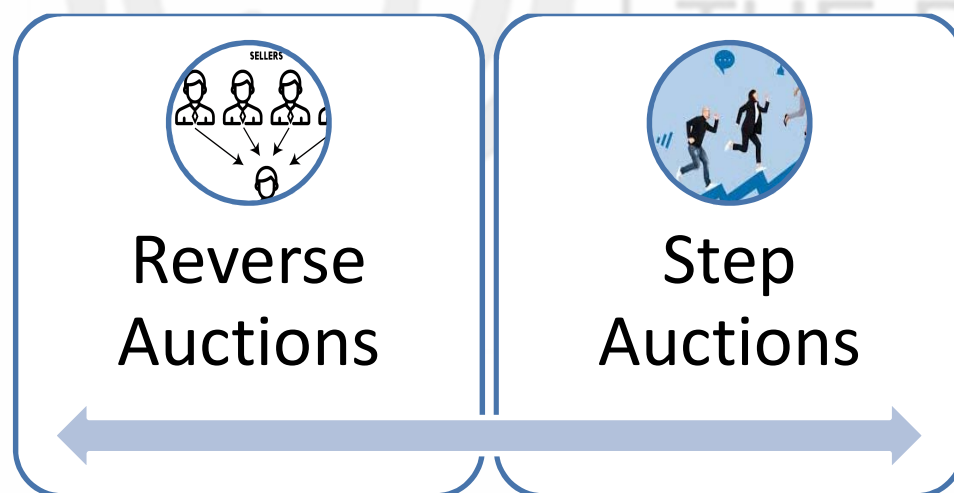


Fig 14.6: Reverse Auction v/s Step Auction

- **Reverse auctions:** A reverse auction is a type of auction in which the traditional roles of buyer and seller are reversed. Thus, there is one buyer and many potential sellers. In an ordinary auction, buyers compete to obtain goods or services by offering increasingly higher prices
- **Step Auctions:** In a step auctions, savings are generated because suppliers are unaware about their competitiveness compared to the other suppliers. In this format, suppliers have no transparency regarding their

position, how many suppliers are participating in the auction or the other suppliers' prices. The supplier can only see when their bid has been accepted or rejected. For this reason, a step auction can take place with only one supplier.

14.7.1 Examples of E-Auctions Services

- **General consumer auctions:** The best purchaser sell off Web destinations is eBay and the most well-known arrangement utilized is a modernized form of the English sale. Note that in the eBay English sale merchants are permitted to set a save cost. In this kind of sale, bidders are recorded, yet the offer sums are not unveiled until the sale is finished. This is a slight difference from the in-person English sale, but since eBay consistently shows a ceaselessly refreshed high offer sum, a bidder who screens the sale can see the offering design as it happens. The fundamental contrast between eBay and a live English sale is that bidders don't have the foggiest idea who to put which offer until the bartering is finished. The eBay English sale additionally permits merchants to indicate that a closeout be made private. In an eBay private sale, the site never reveals bidders' characters and the costs they offer. At the finish of the closeout, eBay informs just the dealer and the most noteworthy bidder. Another closeout type offered by eBay is an expanding value design for different thing barterers that eBay calls a Dutch sale. This configuration is certifiably not a genuine Dutch closeout; however, is rather a Yankee sale.

Table 14.7: eBay sell off, bidders Case Study

eBay started out as Auction Web, an online auction portal that allowed interpersonal transactions. It was a first of its kind – a platform business model that generated revenue by drawing a transaction fee from the people and businesses that used the website for selling/buying products and services.



Today, eBay is a multibillion-dollar e-commerce platform linking millions of buyers and sellers across the globe. It allows consumer to consumer and business to consumer transactions. The platform is free of charge for buyers. The sellers receive a pre-determined number of free listings and are charged a fee for subsequent listings. eBay also generates revenue from the commission gained from product sales.

eBay currently operates across 30 different countries, serving as a traditional online shopping website (ebay.com) with thousands of different products in addition to offering services like online auction, event ticket trading (stubhub.com) and online classified ads. In one or the other sort of eBay sell off, bidders should continually screen the offering movement. All eBay barterers have a base offered increase, the sum by which one offer should surpass the past offer, which is around 3 percent of the offer sum. To make offering simpler, eBay permits bidders to make an intermediary offer. In an intermediary offer, the bidder

determines a most extreme offer. In the event that that most extreme offer surpasses the current offer, the eBay site naturally enters an offer that is one least offer higher than the current offer. As new bidders enter the closeout, the eBay site programming consistently enters higher offers for all bidders who put intermediary offers. Despite the fact that this element is intended to cause offering to require less bidder consideration, if various bidders enter intermediary offers on one thing, the offering rises quickly to the most elevated intermediary offer advertised. This quick ascent in the current offer frequently happens in the end hours of an eBay closeout.

- **Specialty Consumer Auctions:** There are three broad categories of auction websites, general consumer auctions, speciality consumer auctions eBay in the overall customer sell off market, various firms have chosen to distinguish unique premium market targets and make particular Web closeout destinations that address the issues of those market sections. A few early Web closeout locales began by including innovation things, for example, PCs, PC parts, photographic hardware, and shopper gadgets.
- **Consumer Reverse Auctions and Group Purchasing Sites:** Another sort of business made conceivable by the Internet is the gathering buying webpage, which is like a customer turn around sell off. On a gathering buying site, the dealer posts a product with a cost. As individual purchasers enter offers on a thing (these offers are arrangements to get one unit of that product, however no cost is indicated), the site can arrange a superior cost with the product's supplier. The posted cost eventually diminishes as the quantity of offers increments, however just if the quantity of offers increments. Consequently, a gathering buying site develops various purchasers who will constrain the vender to decrease its cost. The impact is actually similar to the one accomplished by a buyer turn around sell off. The sorts of items that are ideal for bunch buying destinations are marked items with grounded notorieties. This permits purchasers to feel certain that they are getting a decent deal and are not compromising cost for diminished quality. The items ought to likewise have a high-worth to-measure proportion and ought not to be transitory.
- **Business-to-Business Auctions:** There are B2B auctions which are between business to business. Large Organisation regularly trans act unused or over stocked material have liquidation experts who discover purchasers for these unusable stock things. More modest organizations regularly offer their unusable and overabundance stock to liquidation merchants, which are firms that discover purchasers for these things. Online sales are the consistent expansion of these stock liquidation exercises to another and more productive channel, the Internet.

Two of the three arising business-to-business Web closeout models are immediate relatives of these two customary techniques for dealing with abundance stock. In the huge organization model, the business makes its own closeout site that sells overabundance stock. In the little organization model, an outsider Web closeout website replaces the liquidation representative and sales abundance stock recorded on the webpage by various more modest merchants. The third business-to-business Web closeout model takes after purchaser online sell-offs. In

this model, another business element enters a market that needed effectiveness and makes a site at which purchasers and dealers who have not verifiably worked with one another can take an interest in sales. An elective execution of this model happens when a Web sell off replaces a current deals channel.

- **Business-to-Business Reverse Auctions:** In the past years, glass and building materials maker Owens Corning held in excess of 200 converse sales for an assortment of things including synthetic compounds (direct materials), transports (fixed resources), and line fittings (MRO). Owens Corning even held an opposite sale to purchase filtered water. Requesting that its providers offer has decreased the expense of those things by a normal of 10%. Since Owens Corning purchases billions of dollars' worth of materials, fixed resources, and MRO things every year, the potential for cost reserve funds is huge. Both the U.S. Naval force and the government's General Services Administration are exploring different avenues regarding reverse closeouts to procure a little piece of the billions of dollars' worth of materials and supplies they buy every year. Organizations that utilization switch barterers incorporate Agilent, Bank One, Bechtel, Boeing, Raytheon, and Sony.

Not all organizations are excited about opposite sell-offs. Some buying heads contend that converse sell-offs cause providers to contend on cost alone, which can lead providers to compromise on quality or miss booked conveyance dates. Others contend that converse closeouts can be valuable for nonstrategic ware things with set up quality guidelines.

14.8 E-LEARNING

All of us have access to the internet and we use it for many different things like researching for some information for school and college projects, downloading music, pictures, wallpapers, emails, instant messaging, chats, and many other things.

One can educate oneself in the comfort of their own home and get a degree through the internet now. With the latest technology, even the impossible seems possible now.

E-Learning, or electronic learning, is the delivery of learning and training through digital resources. Although eLearning is based on formalized learning, it is provided through electronic devices such as computers, tablets and even cellular phones that are connected to the internet.

Benefits of eLearning

E-learning saves time and money. With online learning, learners can access content anywhere and anytime. E-learning is also cost-effective; companies save a substantial amount on the travel and accommodation costs of both learners and instructors, as well as the venue and materials.

SWAYAM (meaning 'Self') is a Sanskrit acronym that stands for "Study Webs of Active-Learning for Young Aspiring Minds" is an Indian Massive open **online course** (MOOC) platform. The platform offers free access to everyone and hosts **courses** from **class 9** till post-graduation. SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.



Courses delivered through SWAYAM are available free of cost to the learners, however learners wanting a SWAYAM certificate should register for the final proctored exams that come at a fee and attend in-person at designated centres on specified dates.



In order to ensure that best quality content is produced and delivered, nine National Coordinators have been appointed. They are:

- AICTE (All India Council for Technical Education) for self-paced and international courses
- NPTEL (National Programme on Technology Enhanced Learning) for Engineering
- UGC (University Grants Commission) for non technical post-graduation education
- CEC (Consortium for Educational Communication) for under-graduate education
- NCERT (National Council of Educational Research and Training) for school education
- NIOS (National Institute of Open Schooling) for school education
- IGNOU (Indira Gandhi National Open University) for out-of-school students
- IIMB (Indian Institute of Management, Bangalore) for management studies
- NITTTR (National Institute of Technical Teachers Training and Research) for Teacher Training programme

Online Portal and Application



Check Your Progress A:

1. What are online services?

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2. Differentiate between speciality consumer auctions and business to business auctions.

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3. Explain the ease of accessibility in online travel services.

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4. How is Artificial intelligence leading to personalization in online banking services?

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14.10 ONLINE LEARNING

Online or web-based learning is schooling that happens over the Internet. It is frequently referred to as "e-learning" among different terms. We can say that, internet learning is only one kind of "distance learning" - the umbrella term for any discovering that happens across distance and not in a conventional mode of teaching learning. Distance learning has a long history and there are a few kinds accessible today, such as;

- **Correspondence Courses:** These are led through standard mail with little collaboration.
- **Tele courses:** Substance in tele courses is conveyed through radio or transmission.
- **Compact disc ROM Courses:** Under this preloaded study content is offered via compact discs.
- **Web based Learning:** These are offered via medium of internet.
- **Portable Learning:** This is offered by gadgets, for example, phones, PDAs and advanced sound players (iPods, MP3 players).

Internet learning acts as a catalyst to educate and learn. There is a move away from top-down addressing and inactive understudies to a more intuitive, community-oriented methodology in which understudies and teacher co-make the learning cycle. The Instructor's job is transforming from the "sage on the stage" to "the guide as an afterthought."

Some of the fundamental focal points of online learning includes:

- **Convenience:** Online learning provides all day, every day access from any online PC; obliges occupied timetables; no driving, no looking for stopping.
- **Enhanced Learning:** Research shows expanded profundity of comprehension and maintenance obviously content; more significant conversations; accentuation on composing aptitudes, innovation abilities, and fundamental abilities like time the executives, freedom, and self-control.
- **Levelling of the Playing Field:** Students can set aside more effort to think and reflect prior to imparting; bashful understudies will in general flourish on the web; secrecy of the online climate.
- **Interaction:** Increased understudy to-educator and understudy to-understudy collaboration and conversation; a more understudy focused learning climate; less uninvolved tuning in and more dynamic learning; a more prominent feeling of connectedness, cooperative energy.
- **Innovative Teaching:** Student-focused methodologies; expanded assortment and inventiveness of learning exercises; address diverse learning styles; changes and enhancements can mean on-ground courses too

- **Improved Administration:** Time to look at understudy work all the more altogether; capacity to archive and record online cooperations; capacity to oversee evaluating on the web.
- **Savings:** Accommodate more understudies; expanded understudy fulfilment = higher maintenance and less rehashes.
- **Maximize Physical Resources:** Lessen request on restricted grounds foundation; decline clog nearby and parking garages.
- **Outreach:** Give understudies choices; arrive at new understudy markets; appeal to current understudies subsequently expanding enrolments.

14.11 e-PUBLISHING SERVICES

At first, development in the internet distributing commercial center was driven by the capability of new intelligent innovations and applications. The guarantee of new intuitive distributing caught the creative mind of both substance suppliers and the general population. Nonetheless, from 1993 to 1995 a lot of internet distributing was repressed by an absence of business reason. Around then, the substance creation side of internet distributing was overwhelmed by techno-adroit people who were not competent at selling and who did not comprehend the matter of distributing. Also, there were distributing organizations simply needed to be on the web without understanding the cycles and irritations.

As the underlying rapture wore off, distributors understood that basically having a presence on the web did not ensure benefits. They found that offering energizing innovation without convincing substance is inadequate to catch piece of the overall industry. These organizations are discovering that the most ideal approach to catch buyers' consideration is to build up a plan of action that permits the organization to offer one of a kind and important data, programming, and administrations.

Online distributors are growing new plans of action to charge clients straightforwardly and persuade them that such charges are defended. As an ever-increasing number of firms start to offer online substance, they are being compelled to change in accordance with new client perspectives in regards to evaluating. Distributors presently money their organizations by giving publicists mass business sectors for conveying their message as a trade-off for huge publicizing expenses. General society has been prepared to feel that the news, data, and amusement they get ought to be financed or almost free and that promoters will cover the tab. This methodology may not be feasible in the online medium when mass business sectors are re-put by clients choosing their data and conveyance strategies.

The early internet distributing pioneers are attempting to achieve a troublesome accomplishment. Paper and magazine distributors, a portion of the first to have a special interest in the internet, are dabbling with new promoting models for their juvenile web locales. As a rule, standard publicists have been restless about siphoning cash into a medium with a

group of people whose size and propensities are almost difficult to sort out. Because of moderately low promotion incomes, none of the Web distributors have made money. While advertisement incomes are not verging on covering costs now, they could fill considerably in coming a long time as the traffic increments and brand names become set up. Brand improvement is significant on the grounds that each time a client sits before a web program; she needs to settle on a choice about where to go. The better the brand, the more probable it is to spring up in the shopper's brain

14.11.1 Online Publishing Strategies

Similarly, as with any new turn of events, there are by and large three systems for distributing organizations to consider:

- **Early Movers:** These are exceptionally talented free distributors with existing admittance to such key capacities as immediate advertising and request satisfaction. These distributors have the ability to get the most noteworthy advantages from new media as their expectations to absorb information are a lot more limited than others, and they as of now have a significant number of the essential assets close by.
- **Watchers:** These are enormous distributing organizations that utilize scale-touchy financial matters. They are probably not going to see internet distributing as an adequately appealing channel until costs fall and dispersion broadens. This class incorporates distributors of unbranded or less unmistakable substance who can't draw in an adequately huge beginning customer establishment, just as engaged distributors in classifications not handily appropriate for the online medium.
- **Analyzers:** These are most of distributors that face either engaging quality or potentially expertise challenges. Assembled here are numerous multi class and claim to fame distributors who are contending effectively in conventional business sectors, who are questionable who will win in the online commercial center, and who neither need nor need to settle on a decision now. Analyzers likewise incorporate marked general distributors with hearty customer establishments and appealing dissemination diverts effectively set up. For this gathering, the online medium gives off an impression of being another option.

As a rule, distributors are instructing themselves about the expected chances without subscribing to anybody position. Those with solid brand pictures and existing purchaser establishments may decide to post-pone section until they find reasonable specialist co-ops and wholesalers. Distributors, for example, the Wall Street Journal and New York Times are participating in focused tests and pilot projects pointed toward realizing what web based distributing has to bring to the table, building required abilities, and investigating the appeal of expected channels. These tests regularly incorporate an ability building program just as an early notice framework so an organization can rapidly distinguish and re-act to changes inside the business or economy.

Content, motivators, administration, quality, and cost won't be sufficient to contend in this new climate. Speed of conveyance, packaging of items, and variety of decision additionally become basic achievement factors. Distributors should enhance continually and challenge present ideas if this type of business is to turn out to be broadly acknowledged and famous. Winning in internet distributing will involve growing new aptitudes in regions, for example, customized promoting, request handling and satisfaction, and client care just as re-learning the major standards concerning why individuals buy in.

14.11.2 Online Publishing Approaches

There are many online publishing approaches as explained below:

1. **Content distributing approaches:** There are four types of content distributing approaches as explained following:
 - **The online chronicle approach:** This is new to the Web, yet is a sensible augmentation of the patterns in electronic conveyance in the course of recent years.
 - **The new medium methodology:** This is more dubious and harder to execute, yet additionally energizing.
 - **The distributing intermediation approach:** This is an online augmentation of the outsider distributor part disconnected.
 - **The dynamic and without a moment to spare methodology:** In this methodology, content is amassed continuously and communicated in the organization most appropriate to the client's preferences and inclinations.
2. **The Online Archive Approach:** The online chronicle approach (counting bibliographic information bases and full-text search/recovery administrations) claims to corporate distributors and, somewhat, business distributors, (for example, scholastic or diary distributors) who have a current computerized document that they need to convey over the Web just as on paper, CD-ROM, or other media.

An illustration of a bibliographic information base is MEDLINE, created by the National Library of Medicine (NLM), which obliges an expanding number of doctors who depend on online clinical information bases to stay up with the latest with the most recent turns of events and writing. The spread of PCs has empowered doctors to straightforwardly look through information bases utilized exclusively by bookkeepers previously. MEDLINE and other clinical information bases are accessible complimentary on the Internet.

3. **The New Medium Approach:** The new medium methodology (counting genuine - time news conveyance, customized news conveyance, and edutainment) expects to make new material for the Web-to regard the Web as its own medium, one meriting its own material. This methodology will have the most appeal to business print distributors, for

example, magazines, that see the Web as another option, not a substitution, for print distributions. For instance, Wired magazine sees practically nothing hybrid in substance between its magazine and its Hot Wired adventure. A few essayists may compose for both media, however separate substance streams will be produced for every medium.

This methodology right now makes them aware about the issues in view of mechanical constraints. For example, the arranging constraints of the Web are disappointing right now, yet with innovative progressions they will before long be failed to remember. The dissatisfactions are more than counterbalance the Web offers; its model is both telecom and discussion simultaneously. With web based distributing there might be a notable beginning stage, however with no controlling watchman; the ensuing worth added act of spontaneity from per users makes each online magazine a one-of-a-kind encounter.

Regardless of whether the innovation imperatives were survived, the assumptions for the Web are so not the same as print media that new substance, composed for a Web crowd, should be made. It rapidly becomes evident that under this model, the old standards don't work. The distributor surrenders its image name, however its scholarly substance, too-once the data is out there, it is no more, possessed. Confronted with that model, every one of a distributor can do is "be the first with the most fascinating stuff," a methodology that HotWired is taking in its endeavour to make a spot where per users can perceive what the world needs to state on a moment by minute premise.

4. **The Publishing Intermediation Approach:** The distributing intermediation approach (counting on the web indexes) misuses new help openings for go-betweens. For instance, in the developing business sector for instructive material, for example, course packs and other modified books, organizations offering material claimed by more than one distributor face the overwhelming assignment of getting authorizations. New associations that spend significant time in the administration of copyright leeway are arising as vital participants.

Online indexes are significant for a few reasons. Organizations and customers keen on directing electronic trade frequently battle to explore the Internet to make an electronic commercial center. Once on that rambling organization, they are experiencing difficulty finding different organizations, items, and administrations. The achievement of Yahoo's first sale of stock (IPO) underscores the significance of online indexes. Yippee (which represents Yet Another Hierarchical Official Oracle) was made in 1994 by David Filo and Jerry Yang, two Stanford, University electrical designing PhD understudies who started DY assembling arrangements of their number one Web destinations. It proceeded to get perhaps the most well known methods for exploring around the Internet. Yippee is the primary spot a great many Internet clients go when they attempt to discover their way around the quickly developing Internet. At once, Yahoo was getting around 6 million guests for every day, which made it the second most dynamic Web webpage

close to Netscape's landing page. Unmistakably, there will be an interest for intermediation in light of the fact that there will al-ways be a requirement for a decent catalogue to assist individuals with finding merchandise, administrations, and items. What's to come is splendid for the distributing delegates who offer simplicity of activity, speed, and point by point data.

5. **The Dynamic and Just-in-Time Publishing Approach:** Online substance is not, at this point static data. Substance would now be able to be made continuously and communicated on the fly in the configuration most appropriate to the client's area, tastes, and inclinations. All the more critically, the substance motor perceives rehash guests to a website and arranges the Web pages to coordinate the person's known inclinations. For instance, a distributor wanting to send a huge item index will presently don't need to creator and update every individual Web page. All things considered, the components of each page-text, designs, video, and sound-are put away independently in an information base and used to make individualized pages on the fly as every client peruses the site.

14.11.3 Copyright Issues

Another central point of interest in web based distributing identifies with computerized copyrights. Powerful mechanical assurance instruments are essential to guaranteeing the accessibility of value content on the web. Today, distributors, for example, Addison- - Wesley just offer inventories or test determinations of works accessible on the web. They don't and can't offer more in light of the fact that in a climate where the way of life and innovation give so little assurance to the privileges of content makers, there is too extraordinary a danger to their protected innovation. The Internet makes it amazingly simple to duplicate, retransmit, and change works without the authorization or the copyright holder. Additionally, the advanced world has no worldwide limits, and policing is unthinkable since the degrees of assurances and assents against encroachment differ broadly in nations across the globe, which makes the danger considerably more noteworthy.

14.12 ONLINE ENTERTAINMENT

Utilizing the Internet has just reformed business, banking, individual correspondences and shopping. The entertainment industry is also not an exception to it.

The Online entertainment basically includes getting music and movies over the Internet. This can be either watched or tunned in to programs as they occur (live streaming) or to keep it on your gadget to appreciate sometime in the not too distant future based on your very own preference (downloading). There are various types of online diversion are accessible which includes Online books (digital books), Online music (streaming or downloading from collections, playlists or radio broadcasts), Online TV and film seeing (streaming or downloading), Online games etc.

Any cutting-edge web empowered gadget ought to have the option to get to online diversion. A PC, or tablet may be favoured by some for getting a charge out of visual media as the screens are bigger yet most cell phones with great quality screens are completely competent too. Music can be played back on numerous gadgets and you can utilize the earphone attachment found on most electrical gadgets to connect speakers or individual earphones/headphones. Benefits of getting to diversion on the web are convenience - browsing a wide scope of effectively got to material, Cost - capitalizing on free substance and Timing - picking when and where you see or tune in etc. Below explained are the examples of online entertainment services:

14.12.1 TV Online

- Television administrations are accessible for most significant stations and there are a couple of various manners by which you can stream the substance. Watch recorded TV shows which are put away online after their unique transmission. Watch live TV which shows programs progressively (you need a TV permit for this) YouTube Massively famous for everything from music recordings, full TV projects and movies just as senseless clips. YouTube is free and perhaps the simplest real time feature to utilize. BBC iPlayer Streaming is getting progressively critical to the BBC and by utilizing their own iPlayer administration you can get to TV and radio yield that is both live and recently recorded. In the event that you stream any 'live' TV content you should have a TV permit despite the fact that in the event that you just utilize the administration for documented material (for example shows that have just been communicated) this doesn't make a difference. Comparative choices are accessible from other earthly TV channels like ITV, ITV Player, Channel 4: 4 On Demand, Channel 5: Demand 5 etc.
- **Film:** Those with memberships to administrations, for example, LoveFilm and Netflix can likewise get to a scope of movies on the web. Comparative administrations are likewise accessible to supporters of computerized TV bundles, (for example, Virgin Media or Sky) and permit clients to login to their record and view films on the web. Watch late deliveries and old movies online through streaming. A solid web association and a lot of information stipends will be expected to devour this measure of information. Most films require "buffering" to permit the substance to be seen and in the event that you are in a territory with restricted network, at that point this may be influenced Netflix Originally began as a DVD conveyance administration, Netflix currently offers an immense scope of movies, TV shows and a developing choice of unique substance all as 'on interest' streams. This is a paid for administration despite the fact that you might have the option to get a free one-month preliminary. Amazon Instant Video Formerly LoveFilm until February 2014, Amazon Instant Video offers a lease and purchase administration with admittance to in excess of 50,000 advanced motion pictures and TV scenes. A 30-day free preliminary can be accessible while Prime Instant Video offers a membership administration.

14.12.2 Book

Digital books can be gotten to online to give clients the opportunity to peruse from gadgets. Quest for well-known titles, new deliveries or old book. Enjoy a scope of free downloadable books with certain assistance (Kindle and so forth). Purchase new books to peruse on applications downloaded on your PC or explicit tablet devices. Download bought books to your tablet to appreciate progressing Google Play Many individuals have tablets or cell phones which utilize the Android working framework and Google Play is the authoritative source to download films, TV shows and significantly more. Windows Phone App Store This is intended for use with Windows Phone gadgets and furthermore offers admittance to an extraordinary scope of substance to download on the gadget.

14.12.3 Radio

Radio just as getting to music as individual records; you can likewise get to online radio broadcasts to appreciate later or old hits. Visit the site of the radio broadcast you need to tune in to listen to live transmissions to hear the most recent music, news and critique Listed to web recordings or meetings put away on the radio site BBC Radio Listen to shows from any of the BBC Radio channels, including live streaming and past shows. Web Radio a live streaming radio website that incorporates large numbers of the UK's driving stations, Internet Radio offers a support that can turn any PC, tablet or telephone into a radio. Various radio broadcasts can likewise be gotten to straightforwardly internet, including the accompanying: Heart FM Kerrang Capital FM Magic Kiss FM Absolute Radio.

14.12.4.1 OTT (Over-The-Top)

OTT also known as Over-The-Top platforms are the content providers growing exponentially as more people switch to online channels for entertainment. An over-the-top media service is a streaming media service offered directly to viewers via the Internet. OTT bypasses cable, broadcast, and satellite television platforms, the companies that traditionally act as a controller or distributor of such content. According to comScore, around 50 million households across the world, today have OTT video, which they consume in the same time-of-day pattern as traditional TV viewers. It is safe to say that the video medium is being reshaped by OTT video streaming providers.



Fig 14.7: OTT Platforms

For a regular user of the Internet, an "OTT app or service" is something like:

- YouTube, Hulu, Netflix or Apple TV for streaming video
- Skype or Facetime for voice/video calls
- WhatsApp or iMessage for messages on a mobile device
- Xbox 360 or World of Warcraft for gaming

OTT in Indian Perspectives

OTT have a great impact and have strategic implications which have changed the dynamics of the video streaming industry especially the OTT services in India. The OTT services have powered the 3rd era of television where the video streaming platform has advanced by adapting formats, enhancing content delivery over networks, seamlessly connected devices and monetization technology. This advent has brought IP video closer to the consumer as well as to businesses.

The increasing penetration of the internet and mobile devices has conveniently spread the mantra of 'anything, anytime, anywhere' which has turned up as the success key for driving the future of OTT services in India. This fairly bright future is observed across all genres of content i.e text, music or video. With improved cellular networks, access to the internet has improved which has made the digital ecosystem even more capable of getting the content consumed also the total spend of mobile and entertainment has exponentially increased because India is approximately adding 40 million new internet users every year.

Check Your Progress B:

1. How is the internet helping copyright issue of publishing services?

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2. Explain web communities in the second wave of electronic commerce?

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3. What do you understand by digital books?

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4. What are the benefits of getting to diversion on the web?

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14.13 LET US SUM UP

With the expanding request of web-based business, more organizations are currently searching for better thoughts and occasions to upgrade their reasonable worth. Presumably the electronic trade industry is presently the piece of pretty much every business. The new time of online business website architecture is moving towards the digitalization of numerous enterprises and the movement business is additionally actualizing their business arrangements through it.

Finance is seen as one of the industry’s most vulnerable to disruption by software because financial services, much like publishing, are made of information rather than concrete goods. FINTECH is a portmanteau of the terms “finance” and “technology” and refers to any business that uses technology to enhance or automate financial services and processes. The term is a broad and rapidly growing industry serving both consumers and businesses. Financial technology is the technology and innovation that aims to compete with traditional financial methods in the delivery of financial services.

One incredible utilization of online business is to offer monetary types of assistance that broaden the things offered by banks. FinTech organizations may offer normal financial administrations in addition to different administrations. Some alternate ways that FinTech and web-based business sway one another are Advanced currency and crypto currency, Administrations for the unbanked, Lasting digital archive records, Man-made brainpower and Big data mining, Shared transactions, Versatility, Personalization etc.

Travel organizations would now be able to contact your worldwide crowd settling down anywhere on the planet and effectively count their evaluation with rivals to empower them to offer their own clients the ideal alternatives. Some advantages of the online services in the travel industry are Online Booking, Overseeing Recessions, Computerization and Networking, Extra Global Market, Ease of access etc.

From numerous points of view, online closeouts give a business opportunity that is ideal for the Web. A sale site can charge the two purchasers and vendors to take an interest, and it can sell promoting on its pages. Individuals keen on exchanging explicit things can frame a market section that sponsors will pay extra to reach. Few of the examples of online services in Auction are, Closeout escrow benefits, Closeout registry and data administrations, Closeout transfer administrations, Sale programming, Online Auctions and Related Businesses, General Consumer Auctions, Specialty Consumer Auction, Consumer Reverse Auctions and Group Purchasing Sites, Business-to-Business Auctions, Business-to-Business Reverse Auctions etc.

Online or web-based learning is schooling that happens over the Internet. It is frequently alluded to as "e-learning" among different terms. Notwithstanding, internet learning is only one kind of "distance learning" - the umbrella term for any discovery that happens across distance and not in a conventional homeroom. Distance learning has a long history and there are a few kinds accessible today, including Correspondence Courses, Tele courses, Compact disc ROM Courses, Web based Learning, Portable Learning etc.

Internet learning is catalyzing an instructive move by the way we educate and learn. There is a move away from top-down addressing and inactive understudies to a more intuitive, community-oriented methodology in which understudies and teachers co-make the learning cycle. The Instructor's job is transforming from the "sage on the stage" to "the guide as an afterthought. "Some of the fundamental focal points of online learning includes Convenience, Enhanced Learning, Levelling of the Playing Field, Interaction, Innovative Teaching, Improved Administration, Savings, Maximize Physical Resources, Outreach etc.

Utilizing the Internet has just reformed business, banking, individual correspondences and shopping. All the more as of late the entire range of diversion media has begun to be centred around giving on the web access to the expression 'online diversion' basically includes getting to material, for example, music and movies over the Internet. This can be either watching or tuning in to programs as they occur (live streaming) or to keep it on your gadget to appreciate sometime in the not-too-distant future based on your very own preference (downloading). Various types of online diversion are accessible which includes Online books (digital books), Online music (streaming or downloading from collections, playlists or radio broadcasts), Online TV and film seeing (streaming or downloading), Online games etc.

14.14 KEY WORDS

Business-to-Business Auctions: B2B auctions takes place across a range of industries and instantly connect buyers and vendors on an international scale in real-time.

Digital Books: A digital book, also known as an e-book or electronic book, is a book publication made available in digital form, consisting of text, images, or both, readable on the flat-panel display of computers or other electronic devices.

E-auction: E-auction is the process of conducting an auction to sell assets, natural resources or other goods through online competitive bidding.

Online Entertainment: Online social entertainment blends entertaining interactive functionality and content including live video streaming, video chat communications, multi-player gaming, music and videos streaming, with social networking service such as social graph management, forums, reviews, ratings, and geo-location options.

Online Learning: Online learning is education that takes place over the Internet. It is often referred to as “e- learning” among other terms. In short it is an umbrella term for any learning that takes place across distance and not in a traditional classroom.

Specialized Web Auction Sites: Specialized Web auction sites meet the need of special interest market segments.

Speciality Consumer Auctions: Specialty consumer auction sites gain an advantage by identifying a strong market segment with readily identifiable products.

14.15 TERMINAL QUESTIONS

1. What are E-services? What are the various advantages of E-services?
2. Explain the significance of E-auction.
3. How is the internet aiding in the financial services?
4. What are the various technologies used by FinTech?
5. What is the significance of virtual communities and web portals?
6. How the internet revamped the travel industry?
7. Explain the various online publishing strategies.
8. Explain the various online publishing approaches.
9. How is internet helping in entertainment industry?
10. What is online leaning? What are its various focal points?



Note

These questions are helpful to understand this unit. Do efforts for writing the answer of these questions but do not send your answer to university. It is only for your practice.

UNIT 15 APP BASED COMMERCE

Structure

- 15.0 Objectives
- 15.1 Introduction
- 15.2 What is an App?
 - 15.2.1 Classification of Apps
 - 15.2.2 Types of Apps
- 15.3 Steps for App Development
 - 15.3.1 Defining Mobile App Objective
 - 15.3.2 Preliminary Design
 - 15.3.3 Market Research
 - 15.3.4 Market Analysis
 - 15.3.5 Collection of Users Feedback
 - 15.3.6 Financial and Technical Feasibility
 - 15.3.7 Testing of App Prototype
 - 15.3.8 Launching the App
 - 15.3.9 Official Release
- 15.4 Mobile Development Frameworks
 - 15.4.1 Native Mobile App Development
 - 15.4.2 Cross-Platform mobile App Development
- 15.5 App Store
- 15.6 Apps for Various Domains & Segments
- 15.7 Let Us Sum Up
- 15.8 Keywords
- 15.9 Answers to check your progress
- 15.10 Terminal Questions

15.0 OBJECTIVES

After studying this unit, you should be able to:

- understand what is an App and its various types;
- describe various steps for App development;
- know about various App development frameworks;
- know about various types of App store;
- know about different Apps for various domains and segments;
- Explain and plan a framework for a business App.

15.1 INTRODUCTION

In the present time, with the rapid technological disruption, mobile phones have become an inevitable part of human life. Even though the primary function of mobile phones is telecommunication but with the technological upfront they have made many things possible which were unimaginable earlier. Now the things have changed with the advent of smart phones, each person today owns his/her own mobile phone. Accessibility to smart phones has made our life easier in many ways. The main advantage of mobile phones are its portability, you can carry them in your pockets wherever you go. Smart phones introduced a new face to service sector with the invention of mobile apps. Mobile apps basically are applications designed to perform a specific task at the user's fingertip. The services that mobile apps and smart phone provide are plenty.

15.2 WHAT IS AN APP?

An app is short form of a term called "application," it is basically a type of software that can be installed and run on a computer, tablet, Smartphone or other electronic devices. An app is simply a piece of software that you can get access to and use through the internet. A mobile application, also referred to as a mobile app or simply an app, is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch.



Fig 15.1: App Icon in a Mobile or smart phone

Many apps are also available for mobile devices and even for TVs. We will discuss about it in a more elaborative manner in coming heads of the unit, some are useful for desktop and some are useful for Mobile.

15.2.1 Classification of Apps

Mobile applications may be classified by numerous methods. A common scheme is to distinguish native, hybrid, and web-based apps. A brief about all these is give below:

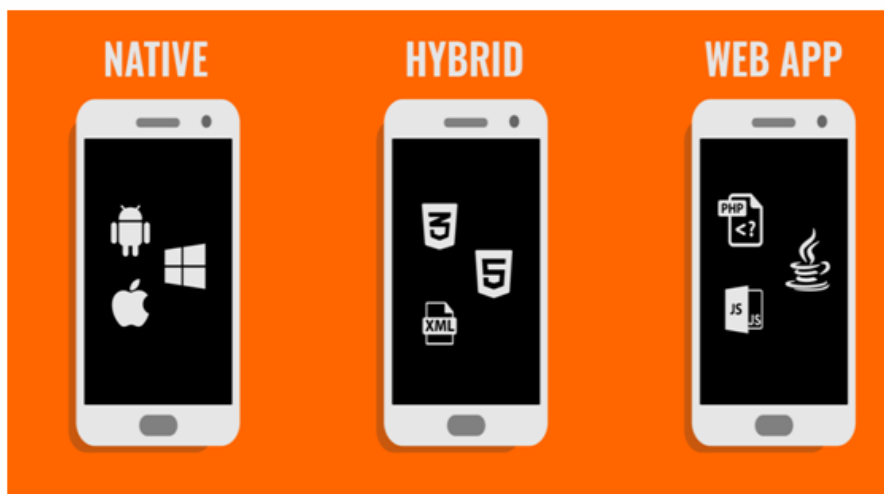


Fig 15.2: Native, Hybrid & Web Apps

- 1. Native Apps:** Native apps are developed for their particular platform, taking full advantage of the software and the operating systems' features. These apps can directly access the hardware of the device such as the GPS, camera, microphone, etc. so they are faster in execution, which ultimately results in better user experience. All apps targeted toward a particular mobile platform are known as native apps. Therefore, an app intended for Apple device does not run in Android devices. As a result, most businesses develop apps for multiple platforms. While developing native apps, professionals incorporate best-in-class user interface modules. This accounts for better performance, consistency and good user experience. Users also benefit from wider access to application programming interfaces and make limitless use of all apps from the particular device. Further, they also switch over from one app to another effortlessly. The main purpose for creating such apps is to ensure best performance for a specific mobile operating system.
- 2. Hybrid Apps:** The concept of the hybrid app is a mix of native and web-based apps. Apps developed using Apache Cordova, Xamarin, React Native, Sencha Touch and other similar technology fall into this category. These are made to support web and native technologies across multiple platforms. Moreover, these apps are easier and faster to develop. It involves use of single code base which works in multiple mobile operating systems. Despite such advantages, hybrid apps exhibit lower performance. Often, apps fail to bear the same look-and-feel in different mobile operating systems.

- 3. Web-based Apps:** Web-based applications are a particular type of software that allows users to interact with a remote server through a web browser interface. It works on any browser whether it is chrome, opera or Samsung internet browser and the users are not obliged to download from the app store. These apps have seen a huge increase in popularity in recent years, replacing desktop applications and becoming a crucial instrument for small and large businesses around the world. A web-based app is coded in HTML5, CSS or JavaScript. Internet access is required for proper behavior and user-experience of this group of apps. These apps may capture minimum memory space in user devices compared to native and hybrid apps. Since all the personal databases are saved on the Internet servers, users can fetch their desired data from any device through the Internet.

15.2.2 Types of Apps

- 1. Desktop Applications:** There are countless desktop applications, and they fall into several categories. Some are more full featured (like Microsoft Word), while others may only do one or two things (like a clock or calendar app). Below are just a few types of applications you might use.
 - **Word processors:** A word processor allows to write a letter, design a flyer, and create many other types of documents. The most well-known word processor is Microsoft Word. We had elaborately discussed about this application software in our previous course (BCOS-184: Computer Application in Business) in an elaborative manner.
 - **Media players:** If you want to listen to MP3s or watch downloaded movies, you'll need to use a media player. Windows Media Player and iTunes are popular media players which are also covered in our previous unit 14 in a much more elaborative manner.
- 2. Mobile Apps:** Desktop and laptop computers are not the only devices that can run applications. You can also download apps for mobile devices like smart phones and tablets. Here are a few examples of mobile apps.
 - **Gmail:** Gmail is used to view and send emails from your mobile device. It's available for Android and iOS devices.
 - **Instagram:** Instagram allows to quickly share photos with your friends and family. It is available for Android and iOS.
 - **Duolingo:** With a combination of quizzes, games, and other activities, Duolingo app can help learn new languages. It is available for Android and iOS.

15.3 STEPS FOR APP DEVELOPMENT

Development of an app is a comprehensive task involving various steps, a brief of all the important steps which needs to be followed while developing any app is described below:

15.3.1 Defining Mobile App Objectives

To clearly set and define the objectives for which App is being made is an important part of the App making process. Following points are important to consider before App designing is defined -

- What is the main purpose of making App?
- What are the main features of App that will be useful for customers?
- How this App will be useful in solving problems of the customers?

Predefined App features are very useful in assessing the total development budget of the App. However, research indicates that app design should prioritize user involvement over proprietary offerings when it comes to prioritizing features.

15.3.2 Preliminary Design

Deciding about preliminary design is the first step of an app development, it is important to take time to design an app's fundamental structure. Before the next step, it is always advisable to spend enough time to design the App preliminary. The concept building for production of clear understanding of each and every small element of the app is important. This phase does not take much time for simple app design, but will take time in case of complex applications design.

15.3.3 Market Research

There might be several innovative apps to start various business projects, but before you move into design and development, it is always better to do research work in terms of market requirement. A small research project with the following questions can support the project much before planning and development work begins -

- What are marketing plans for this App?
- Who are target audience for this App?
- How do you want your customers to use your app?
- Which software platform and framework will be used to make it?
- Which mobile app development language will be used?
- Who are your competitors and what is their strategy? Do they have apps? If so, what features do they offer?
- What is overall app development budget?
- What is timeline for development? When will App be launched?

Details on research should also be shared with distribution, product creation and IT managers including the Software development team. Feedback from all departments concerned is necessary before the App development work begins. But the key issue behind evaluating the marketplace is to obtain a detailed understanding of why and how. How did you say that you would sell one million apps? You can answer the question quite clearly if you have done your market research. Wild assumptions find no place.

15.3.4 Market Analysis

A market analysis is a quantitative and qualitative assessment of a market. It looks into the size of the market both in volume and in value, the various customer segments and buying patterns, the competition, and the economic environment in terms of barriers to entry and regulation. The market for mobile apps is growing rapidly like never before. Due to the pandemic, the number of apps downloaded has increased a lot.

15.3.5 Collection of Users Feedback

After the App is ready, share it with friends and relatives and co-workers to get their feedback and modify the App accordingly. Following questions may be asked during this feedback -

- Is this app useful?
- Will this app be used?
- What is the tentative cost of this App?
- Is there anything which can be added to it to make it more useful?

Another essential aspect of market research is the discovery of existing applications in the same category to improve the novelty of the product and to make the new app better appreciated by the consumer. Apps performing any related role must be studied and evaluated to understand where the behaviours are wrong and what others are doing right.

15.3.6 Financial and Technical Feasibility

It is always necessary to check the financial and technical viability of the entire plan before developing app. It is required to verify whether this software can be developed and whether existing technology funding is available to develop this application.

Financial Feasibility: Financial analysis is an essential activity in order to achieve financial viability. It is important to understand App's fixed cost, to estimate profit from consumers. The financial plan should also cover publicity, advertisement and web hosting expenses. Rental fee for App Store should be included as well. A balanced financial plan must be established in advance

Technical Feasibility: Technical feasibility means checking the possibility if App can be developed by using the latest technology or not. It is important to check if organization is capable enough to use the latest technology or not. After the financial evaluations, there may be some technical questions to

answer as well. It is better to discover these aspects before investing significant time and money into a project. You might not be able to find definitive answers to every technical question, but if you do your homework you will at least be able to intelligently discuss technical concerns with the programmer/ expert selected/hired to ensure expected outcomes.

15.3.7 Testing of App Prototype

This is an important stage in the lifecycle of app development. After completing the App with exciting graphics and text, it is important for the app to be thoroughly tested and corrected under a range of real-world scenarios. Link to your original records of design and planning and check all functions.

When checking the Software, take feedback from other users. Mobile online research tools can also be used to collect feedback and analysis in real time. Tests for image, graphics and user interface compatibility across the platform are also needed. When app provides the desired output in all scenarios including appearance and usability of the interface, it is time to make the final preparations to launch this mobile app.

15.3.8 Launching the App

The process of releasing an app in the market is extremely critical, as it is largely dependent on the success of this application. For branding and marketing the App, it is always advisable to hire a good marketing agency who will make efforts to launch the App in a very professional manner. Marketing is also one of the most critical activities to get involved at an early stage in the process. The Digital Marketing Team supports keyword analysis, important for SEO and App Store Optimism (ASO), both crucial to discovery. The next step is the submission of the mobile app for sale in different markets. Before starting this phase, high-quality screenshots of the application and promotional video and/or demo must be ready for better results.

In order to promote the app, a website would also be important. This is important for branding and recognition, as well as for searching and finding. Promotion of App should be done through organization's website and social media accounts, blogs etc. to target niche market, e mail campaigning can also be done. To increase awareness of the App to target audience, App Analytics of Google Analytics can also be used in the beginning.

15.3.9 Official Release

Up until this point, App's official release date should be the climax of app marketing efforts. Influential bloggers and journalists could write some papers and articles to apprise the people who showed interest in the App before the launch. There could also be a promotional e-mail drive to attract downloads and raise momentum. If the app is published, try keeping user of the app committed by announcing a special deal or promotion using push notifications so that users open the app. Consider having rewards for consumers to download App, such as a single discount, or free product or

service. App marketing has never been stopped and needs new technologies every day.

Build a simple collaborative feedback channel and respond to users' comments and concerns. Updating your customers quickly will work wonderful. Make sure you evaluate and track those KPIs that identify your marketing goals effectively.

15.4 MOBILE DEVELOPMENT FRAMEWORKS

Over the last few years, the number of smart phone users around the world has grown enormously. There are various types of Mobile Development Frameworks as discussed below:

15.4.1 Native mobile app development

The majority of mobile frames are for cross-platform construction. Generally, the development of a mobile app utilizes frameworks developed by the mobile platform company. We generally use the iOS SDK for iOS—the IDE, i.e., the development software pack. For the development of an Android app, Android SDK is the choice. The frameworks are in the SDKs, each of which has the programming languages. SWIFT or Goal-C are used for iOS and Kotlin or Java for Android.

Typically, native apps are fast. They are fully compliant with the hardware and native functions of the computer, such as camera, accelerometer, etc. They may be very costly, on the other hand. A business or company must concentrate on all major mobile platforms, especially Android and iOS. This means that a separate development team is required to develop an app for their business. It is necessary to maintain the app after deployment which makes the process of setup very expensive.

15.4.2 Cross-platform mobile app development

Mobile cross-platform frames are designed to build mobile applications on more than one platform. Most, if not all of the common cross-platform frames have support Android and iOS development. There are following frameworks as discussed in detail below with their respective advantages and disadvantages:

1. **Ionic:** Ionic is an Angular and Apache-Cordova cross-platform system. It helps you to build applications for more than one mobile platform. An application will work for both iOS and Android on the Ionic cross-platform system. Ionic apps have been created and are built like web apps using standard web technologies such as HTML, CSS and Angular. But Cordova, depending on it, makes it possible to use the native features of the unit. Various advantages and disadvantages of Ionic are discussed below:

Advantages

- As a company owner, you not only need to employ two sets of software developers, but you can use your current web development team to create a mobile app for your audience.
- It saves time and expense by using the Ionic production system.
- Ionic uses web technology, so working with them is easy.

Disadvantages

- In comparison to native apps, ionic apps are less effective.
 - Ionic is not the best choice to create apps with high requirements for graphics processing.
2. **Xamarin:** In 2016, Microsoft purchased and opened Xamarin from its owners. Xamarin is a C#-based cross-platform architecture that takes a particular approach for designing cross-platform applications. Unlike hybrid frameworks, which use web technologies, it compiles the individual platforms into native code. Various advantages and disadvantages of Xamarin are discussed below:

Advantages

- Apps that are built using Xamarin have little or no difference as compared to native app output.
- Xamarin helps to create rich UI experiences.
- Xamarin will only share about 90 percent of the codebase for all platforms for you to build the user interface separately for each platform.
- A standard UI can be built across all Xamarin Forms platforms.

Disadvantages

- Xamarin implementations are typically very wide. A simple Android app "Hello World" could take around 16mb.
 - Xamarin developers do need some knowledge of their mother tongues. For iOS and Kotlin/Java for Android, Swift/Objective-C.
 - While Xamarin itself is free, IDE used for production can be very costly for businesses.
 - The incorporation of third-party libraries into Xamarin is often a concern. Although Xamarin tools and libraries provide complete support for native technologies, Xamarin may not be provided by a vendor.
3. **React Native:** React Native is a Facebook mobile platform for the development of mobile applications. It is developed on JavaScript and ReactJS. Contrary to hybrid applications, React Native also uses online technology internally. The web views are not included. It uses actual components of Android or iOS to create user interfaces. It has XML like JSX (Javascript-XML) for the creation of the user interface. React Native then calls for the platform-specific native rendering APIs, i.e. Rendering the programme on the screen with Swift and Java. Various advantages and disadvantages of React native are discussed below:

Advantages

- Respond Native's creation of software saves time. It has a "Hot Reload" feature which lets you view code changes on the phone right away.
- Like Ionic, a new group of developers is not needed to be employed. With React Native, web developers can easily migrate to mobile applications.
- Several ready-made components can be used for production.
- React native-built applications are fast and comparable in compiling them to native code, with native app results.

Disadvantages

- The output is not like that of native apps, as with other cross platform apps. No issue with easy applications. However, applications that require advanced features would develop problems.
- Apps developed with React Native may have memory management problems due to their Javascript history.
- Apart from the React Native team ready-made parts, third-party vendors exist. But the components that they create most frequently appear to be inferior. There are a lot of bugs and malfunctions sometimes.

4. **Flutter:** Flutter is a Google-developed mobile user interface to create a beautiful and interactive interface that takes another approach to cross-platform creation. Unlike hybrid apps that make use of web views, or React Native apps that use native components, Flutter apps fully compile to native code. This native ARM-code compilation means that there is no layer between the system and the CPU that makes apps that are entirely native to Flutter. Flutter can do this by using its own graphics engine called Skia, a popular Google-owned 2D graphics engine. Flutter is developed with a Dart programming language that is object oriented. Various advantages and disadvantages of flutter are discussed below:

Advantages

- Flutter apps are very fast at about 60 fps (frames per second). There are even measurements by some developers in Germany of 120 fps.
- As usual, a single codebase means time and money is saved.
- As with React Native above, Flutter also gives ability to see changes made in code, the instance which is made on mobile hardware, emulator or simulator. This also makes debugging the app much easier.
- Flutter is open source. So is Dart and its graphics engine- Skia.

Disadvantage

- Developers have to learn a new language as Flutter doesn't make use of any previously known language. Although Dart is fairly easy to pick up and this isn't really an issue.
- Games and apps that require a lot of device-specific functions are better off not developed with flutter.

There are many items that rely on knowing the right structure to use. The best choice is to create a game or app that needs a significant number of device-specific functions. However, if your mobile app is reasonably simple, cross-platforming is the best choice because it saves time and money.

Comparison among all these four is given below:

Table 15.1: Comparative Analysis of Mobile Development Frameworks

Basis	React Native	Ionic	Xamarin	Flutter
Developers	Facebook	Drifty	Microsoft	Google
Language	JavaScript	TypeScript	C#	Dart
Performance	Close to native	Moderate	Moderate	Amazing controller
Code resusability	90%	98%	98%	50-90%
Testing	Mobile device or emulator	Any browser	Mobile device or emulator, test cloud	Mobile device or emulator
GUI	Uses native UI controller	HTML, CSS	Uses native UI controllers	Use Proprietary widgets and deliver UI
Apps	Airbnb, Discord, Instagram	MarketWatch, Pacifica, JustWatch	Olo, Stroyo, Apx	KlasterMe, PostMuse Reflectly

Check Your Progress A

1. Fill in the blanks with appropriate words:

- i) is an essential activity in order to achieve financial viability.
- ii) means to check if App can be developed by using the latest technology or not.
- iii) For the development of an app, Android SDK is the IDE of choice.
- iv) frames are designed to build mobile applications on more than one platform.
- v) is an Angular and Apache-Cordova cross-platform system.

2. State whether the following are true or false.

- i) Feasibility problem relates to whether a mobile device app is more suitable than a web application.
- ii) Native apps are fast.
- iii) In comparison with native apps, ionic apps are more effective.
- iv) While Xamarin itself is free, IDE used for production can be very costly for businesses.
- v) React native-built applications are fast and comparable in compiling them to native code, with native app results.

3. What are the advantages of Flutter Apps?

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4. What do you mean by React Native?

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15.5 App Store

Apps were in the beginning planned for efficiency assistance such as email, calendar, and contact databases, but the public demand for apps caused rapid expansion into other areas such as mobile games, factory automation, GPS and location-based services, order-tracking, and ticket purchases, so that there are currently millions of apps accessible. Apps are in general downloaded from application distribution platforms which are operated by the owner of the mobile operating system, known as App stores. Most popular types of APP stores are such as Google Play Store and IOS App Store (iOS), explained in detail below:

Types of APP Store

1.Google Play Store: Google Play Store, in the past known as Android Market, is a digital distribution service operated and developed by Google. It provides as the official app store for certified devices running on the Android operating system, allowing users to browse and download applications developed with the Android software development kit (SDK) and published through Google. Google Play also serves as a digital media store, offering music, books, movies, and television programs.



Fig 15.3: Google Play Store

The services integrated in Google Play are Google Play Books, Google Play Games, and in earlier times included Google Play Music before being discontinued in favor of YouTube Music and Google Podcasts in December

2020, Google Play Newsstand before it was phased out in November 2018, and Google Play Movies & TV before being renamed to Google TV in September 2020.

Google states in its Developer Policy Center that "Google Play supports a diversity of monetization strategies to benefit developers and users, including paid distribution, in-app products, subscriptions, and ad-based models", and requires developers to comply with the policies in order to "ensure the best user experience". It requires that developers charging for apps and downloads through Google Play must exercise Google Play's payment system. In-app purchases unlocking additional app functionality must also use the Google Play payment system, except in cases where the purchase "is exclusively for physical products" or "is for digital content that may be added outside of the app itself (e.g. songs that can be played on other music players)

Find & download apps or digital content

- a) On your device, open Google Play Store. or visit the Google Play store on a web browser.
 - b) Search or browse for content.
 - c) Select an item.
 - d) Select Install and pay item's price.
 - e) Follow the on-screen instructions to complete the transaction and get the content.
2. **iOS App Store (iOS):** The iOS App Store is a digital distribution platform, developed and maintained by Apple Inc., for mobile apps on its iOS & iPadOS operating systems. The store allows users to browse and download apps developed with Apple's iOS Software Development Kit. The Apple Store app provides a more delicate way to shop for the most up-to-date Apple products and accessories.



Fig 15.4: iOS App Store

How to get the App Store on iOS?

1. Launch Settings app on your iOS device.
2. Now, tap on Screen Time.
3. Now Content & Privacy Restriction.
4. Next, you have to enter your Restrictions passcode.
5. Now tap on iTunes & App Store Purchases.
6. Click on Installing Apps.
7. Now, make sure the switch next to Installing Apps is ON. If in case, it is Off turn it On.

15.6 APPS FOR VARIOUS DOMAINS & SEGMENTS

There are various types of Apps developed and confined to various domains, a brief about all that is explained below:

- 1. Augmented and Virtual Reality App:** Virtual reality apps are one of the most popular apps developed in the segment. Many of the VR based app are most popular among users few examples of such apps are Pokemon Go, Google Map etc. Pokemon Go with its augmented reality mode broke the app market and became viral. The well-known social application with Google Maps became top app from last many years as the number of users of this application is constantly growing. Another VR app worth mentioning is Just a Line, an experimental app that allows you to make simple drawings using your phone in augmented reality, film a short video, and share it with your friends. Mobile virtual reality or VR has never been that affordable. Anyone who has a smartphone can purchase a cardboard VR headset to get the experience of VR apps available for download in app stores or to watch 360-degree videos on Youtube.
- 2. Artificial Intelligence Apps:** Artificial Intelligence is more than just an assistant, it learns from user behaviour, it is integrated into chatbots and thus leverages user experience in-app. AI can not only make your app smarter but also saves money. No doubt everyone who has a smart phone has at least heard of Siri or Google Assistant or similar AI apps that aim to make our life easier by searching for information using voice commands.



Fig 15.5: Artificial Intelligence

- 3. Retail Shopping Apps:** These days retail shoppers are not lacking behind in competition. They have also started leveraging benefits of new technology by developing their online apps. Nowadays a shop doesn't have to be big to start taking benefits from creating its mobile app. The advantage of having a mobile application for even a small business is that it increases brand recognition and brings the e-

commerce user experience to a whole new level, it helps to build customer loyalty, to collect feedback as well as simply stand out from the crowd. For example, Max, FBB and Reliance Trends have made their omni channel presence.

- 4. Restaurants and Food Delivery Apps:** More and more people prefer to check the place and its menu before actually going there. Restaurant and food apps encourage clients' interaction, develop loyalty, and increase brand recognition.



Fig 15.6: Food Delivery Apps

In 2020, the top food app became Uber Eats with its sales system, built-in navigation, and online payments. Another popular app in the food sector turned out to be Domino's Pizza app that helps you to place your order using AI and track your pizza location on the map and also allows pre orders and thus saves waiting time.

- 5. Mobile Wallets, Banking and Finance Apps:** In coming years, the number of financial apps users is going to reach in billions. On average users check their bank account and make some transfers using apps every day. Mobile wallets, and other popular online payment trends in the last years, is a great option for those who do not want to carry the plastic debit and credit cards but rather just take their smart phone whenever they go out. Android users can install Google Pay while people who prefer iOS can use Apple Pay. The online payment apps provide great ease and convenience to the users. Also have some add on benefits such as cash back, discounts etc. which is found to be more lucrative.
- 6. Video Streaming Apps:** Video Streaming are one of the most popular apps especially in the adolescent segment. Gone are the days when people used to wait for going to the theatre to watch any movie. A huge upsurge was noticed in the times of COVID especially in the entertainment industry. Most of the movies were launched on these platforms giving viewers a wide access with no extra cost.



Fig 15.7: Netflix

Netflix, the leading TV show broadcasting service, was ahead in annual consumer spending in 2020, while YouTube was number one in time spent. YouTube Kids aimed at children aged 4 and up, meant to protect them from inappropriate content, also remained among leaders in some countries. The video streaming service for gamers Twitch was in the top five apps by time spent in countries such as the US, Canada, Australia, to name a few.

Check Your Progress B

- 1. What do you understand by Google play store?

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- 2. How to get the App Store on iOS?

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- 3. What is augmented reality or virtual reality based apps?

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- 4. State some of the popular examples of retail shopping apps.

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15.7 LET US SUM UP

An app is short form of a term called "application," it is basically a type of software that can be installed and run on a computer, tablet, Smartphone or other electronic devices. An app is simply a piece of software that you can get access to and use through the internet. Many apps are also available for mobile devices and even some TVs. Mobile applications may be classified by numerous methods. A common scheme is to distinguish native, hybrid, and web-based apps. Native apps are developed for their particular platform, taking full advantage of the software and the operating systems' features. Web-based applications are a particular type of software that allows users to

interact with a remote server through a web browser interface. The concept of the hybrid app is a mix of native and web-based apps. Then there are few popular desktop applications such as word processor and media players and mobile apps such as Gmail, Instagram, duolingo etc.

Development of an app is a comprehensive task involving various steps, which needs to be followed while developing any app such as, defining mobile app objectives, preliminary design, market research, market analysis, collection of users feedback and information about competitors, financial and technical feasibility, testing of app prototype, launching the app, official release.

Over the last few years, the number of smart phone users around the world has grown to the trillions. Many companies are now focused on developing mobile apps for their consumers with a website. There are various types of Mobile Development Frameworks such as, Native mobile app development-typically, native apps are fast. They are fully compliant with the hardware and native functions of the computer, such as camera, accelerometer, etc. Cross-platform mobile app development: these are designed to build mobile applications on more than one platform. The most popular cross platform development frameworks are Ionic, Xamarin, React Native, Flutter.

Apps were in the beginning planned for efficiency assistance but the public demand for apps caused rapid expansion into other areas. Apps in general are downloaded from application distribution platforms which are operated by the owner of the mobile operating system, known as App stores. Most popular types of APP stores are such as Google Play Store, which is a digital distribution service operated and developed by Google and IOS App Store (iOS), which is a digital distribution platform, developed and maintained by Apple Inc., for mobile apps on its iOS & iPadOS operating systems.

There are various types of Apps developed and confined to various domains such as Augmented and Virtual Reality Apps, Artificial Intelligence Apps, Retail Shopping Apps, Restaurants and Food Delivery Apps, Mobile Wallets, Banking and Finance Apps, Video Streaming Apps.

15.8 KEYWORDS

App: An app is short form of a term called "application," it is basically a type of software that can be installed and run on a computer, tablet, Smartphone or other electronic devices.

Flutter: Flutter is a Google-developed mobile user interface to create a beautiful and interactive interface that takes another approach to cross-platform creation. Unlike hybrid apps that make use of web views, or React Native apps that use native components, Flutter apps fully compile to native code.

Google Play Store: Google Play Store, in the past known as Android Market, is a digital distribution service operated and developed by Google. It provides as the official app store for certified devices running on the Android operating system.

Hybrid Apps: The concept of the hybrid app is a mix of native and web-based apps. Apps developed using Apache Cordova, Xamarin, React Native, Sencha Touch and other similar technology fall into this category.

Ionic cross-platform system: Ionic is an Angular and Apache-Cordova cross-platform system. It helps you to build applications for more than one mobile platform. An application will work for both iOS and Android on the Ionic cross-platform system.

iOS App Store: The iOS App Store is a digital distribution platform, developed and maintained by Apple Inc., for mobile apps on its iOS & iPadOS operating systems. The store allows users to browse and download apps developed with Apple's iOS Software Development Kit.

Native Apps: Native apps are developed for their particular platform, taking full advantage of the software and the operating systems' features. These apps can directly access the hardware of the device such as the GPS, camera, microphone, etc.

React Native: React Native is a Facebook mobile platform for the development of mobile applications. It is developed on JavaScript and ReactJS. Contrary to hybrid applications, React Native also uses online technology internally. The web views are not included.

Technical Feasibility: Technical feasibility means to check if App can be developed by using the latest technology or not. It's important to check if organization is capable enough to use the latest technology or not.

Web-based Apps: Web-based applications are a particular type of software that allows users to interact with a remote server through a web browser interface.

15.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress A

- (i) Financial analysis (ii) Technical feasibility (iii) Android (iv) Mobile cross-platform (v) Ionic
- (i) True (ii) False (iii) False (iv) True (v) True

15.10 TERMINAL QUESTIONS

1. What are the three broad classifications of an app?
2. What are the various types of desktop and mobile apps?
3. What are the activities required for concept building?
4. Describe the various steps of an App development process.
5. What do you mean by financial and technical feasibility of the plan?
6. What are the two types of mobile development frameworks?
7. What is an app store? What are its various types?

8. What is an ionic cross-platform system? State its advantages and disadvantages.
9. What is Flutter? State its advantages and disadvantages.
10. State the differences among React native, Ionic, Xamarin and Flutter.
11. What are different types of apps in various domains and segments?



Note

These questions are helpful to understand this unit. Do efforts for writing the answer of these questions but do not send your answer to university. It is only for your practice.





Indira Gandhi National Open University
School of Management Studies