# COMPUTING TECHNIQUES, TRENDS AND TYPES OF ECOMMERCE

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**Abstract** - Diverse and interdisciplinary area of Ecommerce is the core technology of knowledge economy which allows one to penetrate both as buyer or seller in to the global market providing matchless opportunities regarding cost, market share etc. Computers, Internet and Smart phones play vital role in the field of ecommerce. Ecommerce without computers is almost impossible. Ecommerce is classified in to six types. Voice shopping, Augmented Reality, Shoppable videos, Blockchain, Chatbots, Beacon, Mobile commerce, Biometrics for safety and security, Cross channel integration, Image search, Fast check outs, Speedy mobile payment solutions, etc. are relatively new technologies that are revolutionizing the field of ecommerce rapidly. The present paper discusses the computing techniques, trends and types of ecommerce along with advantages and disadvantages of ecommerce.

**Index terms -** Ecommerce, Types, Trends and Computing techniques.

## I. INTRODUCTION

Ecommerce is the core technology of knowledge economy. It allows one to penetrate the global market. It provides matchless opportunities for companies to spread out worldwide at a small cost, to raise market share, and to reduce costs. Ecommerce without computers is almost impossible. With the advances in the field of computer science and information technology, android based smart systems, tags scanners etc. the trading has been revolutionised affecting almost entire community keeping no bars of literate/illiterate, rural/urban, poor/rich, young/old. The field of ecommerce is broad. Applications of ecommerce involves home banking, purchases made in e-malls, stocks purchase, job search, e-auctions, e-collaboration among business partners and customer service. Buying or selling of products on online services is ecommerce. Today almost anything could be trade online absolutely anywhere, anytime and that too with number of available choices of price range, product variants and what not? Trading of right from homemade to machine made products related to almost every sector of life such as art, culture, music and entertainment, decoration, fashion, sports, games, food, groceries and beverages, stationary and cutlery items, educational books, e books and literature, compact discs, fund transfers, data transfers and medicines and health services too on global platform of electronic commerce is now becoming a routine.
Historical Review: History of ecommerce dates back to the invention of the very old idea of "sell and buy", electricity, cables, computers, modems, and of course the Internet. Ecommerce became feasible in 1991 when the Internet was provided for commercial purpose. It is the route of carrying out of commercial dealings electronically with the help of the leading technologies such as Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT). Development of internet security protocols such as HTTP and DSL in around 1998 allowed rapid access and a persistent internet connection to general public. In 1998, Intel developed an e-business program for selling online and on customer support for a range of products, including microprocessors, motherboards, embedded chips, chipsets, and flash memory. In the year 2000 sizable number of companies in the United States and Western Europe offered their services in the World Wide Web and the word 'ecommerce' gained new meaning. Ecommerce is virtual world evolving in the benefit of end user. Amazon and Ebay were the first to allow electronic transactions to general customers. Present article aims in narrating different types, computing techniques, emerging trends along with advantages and disadvantages of ecommerce.

## II. TYPES OF ECOMMERCE

Basically, ecommerce is classified in to six types [1] namely; Business to Business (B2A), Business to Consumer (B2C), Consumer to Consumer (C2C), Consumer to Business (C2B)), Business to Administration (B2A) and Consumer to Administration (C2A).

a) Business to Business (B2B): All electronic transactions of goods or services, taking place between companies falls in B2B category. Various companies sell their goods online to only other companies and do not transact in any way with consumer public in general. B2B ecommerce channel is inherently more complex in respect of payment methods, catalogues and variants for individual products. Some of the fast growing B2B ecommerce brands are Flex fire LED, Assurant,

Selini NY, Freund, Restaurant ware and Spectrum Audio etc.

b) Business to Consumer (B2C): In this type of ecommerce, supplier companies sell their goods online to end users directly. Usually, the companies have their web shops open 24 X 7 for any visitor, user and obviously the end user. Virtual stores, online malls fall in this category.

c) Consumer to Consumer (C2C): In C2C ecommerce, all electronic transactions of goods or services took place between consumers, by a third party which provides the online platform to carry out the transactions. An eBay.com is a very good example of C2C ecommerce channel.

d) Consumer to Business (C2B): In C2B, there is a complete reversal of the traditional sense of exchanging goods. Consumers offer their goods/products/services online and companies post their bids. On reviewing the bids posted, consumer goes with company that meets his/her expectations. Even up to some extent customer reviews, blogs, internet forums, etc. offers C2B ecommerce platforms. For example, Amazon.com can pay to an author on successful sale of a particular product. iStockphoto sell royalty free photographs, images, media and design elements. Elance was the first ecommerce site in this category.

e) Business to Administration (B2A): Online transactions between various companies and public administration are of B2A type. It involves a large amount and a variety of services, particularly in areas such as financial, social security, employment, legal documents, and registers, etc. With increasing investments in e-government in recent years B2A type electronic transactions have increased considerably.

f) Consumer to Administration (C2A): In C2A type ecommerce transactions are between individuals and public administration systems. Few of the examples include: Education – disseminating information, distance learning, making payments, taxes, etc.

## III. COMPUTING TECHNIQUES IN ECOMMERCE

Computer technologies reduce commercial tenants' expenses, increase shopper and vendor's communication efficiency and also expand merchants' scope of advertising. It constructs and manages ecommerce website, make and sell virtual goods and services. Ecommerce make use of information technology, communication technology and information management skills in business. Internet and Web technology help individuals, business, companies and other organizations to conduct business in better way. The main technology behind ecommerce is the ubiquitous internet access whereby all elements of commercial transaction such as advertising, production, purchase, payment and delivery of services can be conducted on an interactive basis with persons, unconstrained by time and space, in a multimedia environment at a relatively low cost and increasing competitiveness, efficiency through the redesign of traditional business. Ecommerce involves use of computers, computer systems or computer networks. Table 1 depicts framework for ecommerce in general [2, 3]. The success of ecommerce lies in management of and coordination in between four support categories namely; people, public policy, marketing/ advertising and supply chain logistics and that of infrastructure support. Infrastructural support consists of a variety of hardware, networks, web servers, web page design, construction software, transactional software, internet access components. Obviously, proper planning and its execution with necessary security measures make the ecommerce simple.

Table 1: A framework for ecommerce

With cloud computing technologies ecommerce business can simply rent the hardware and software required for technical architecture instead of buying them and consequently, reducing the cost. Further, it offers transparency, security, privacy, reliability, scalability and flexibility in ecommerce [4]. Even the smart phone market and widespread speedy internet acts like catalyst in mobilising the ecommerce industry.

Technologies Reshaping Ecommerce: In addition to basic technologies involved in ecommerce, some of the relatively new techniques are changing the way of shopping, presenting new channels for interaction between ecommerce stores customers. Voice shopping, Augmented Reality, Shoppable videos, Blockchain, Chatbots, Beacon, Mobile commerce, Biometrics for safety and security, Cross channel integration, Image search, Fast check outs, Speedy mobile payment solutions, etc. are some of the relatively new technologies trends in ecommerce and some of which are briefed here.

**1. Voice Shopping:** Just similar to asking Google Home for the weather report or Alexa to play favourite song, the using voice activated speakers for shopping may become as common as browsing on a desktop. Amazon Echo leads in selling some type of voice activated speaker and ten percent of U.S. households are already using the device. Walmart is also jumping on the voice shopping bandwagon in collaboration with Google Assistant to give shoppers access to over two million products. Buying movie tickets, booking a taxi, take out an order etc. can be processed using WeChat of China.

| ECOMMERCE APPLICATIONS | | | | |
|---|---|---|---|---|
| Direct Marketing • Stocks, Jobs • Online Banking • Procurement and Purchasing • Malls • Procurement • Auctions • Travel • Online Publishing • Customer Services • Intra-business Transactions | | | | |
| People | Public Policy | | Marketing | Supply Chain |
| Buyers, Sellers, Intermediaries, Services, IS People, and Management | Taxes, Legal, Privacy Issues, Regulations, and Technical Standards | | Advertisement: Market Research Promotions, and Web content | Logistics and Business Partners |
| INFRASTRUCTURE | | | | |
| (1) | (2) | (3) | (4) | (5) |
| Common Business Services Infrastructure (security smart cards/authentication, electronic payments, directories/catalogs) | Messaging and Information Distribution Infrastructure (EDI, e-mail, Hypertext Transfer Protocol, Chat Rooms) | Multimedia Content and Network Publishing Infrastructure (HTML, JAVA, World Wide Web, VRML) | Network (telecom, cable TV, wireless, Internet) (VAN, WAN, LAN, intranet, extranet) Access (cell phones) | Interfacing Infrastructure (The databases, logistics, customers, and applications) |
| MANAGEMENT | | | | |

**2. Augmented Reality (AR):** Ecommerce retailers are gradually seeing the benefits of adopting AR tools. Some of the Interior Design and Home Decor sites powered with AR allow consumers to interact with products virtually. For example, 'IKEA Place' uses Apple's AR Kit tech, and allow its buyers to virtually place furniture in their home and dream of what the end result will look like via their smart phones [Image1]. Multifold, a Startup offers web based AR solutions and let companies offer their customers a similar experience.

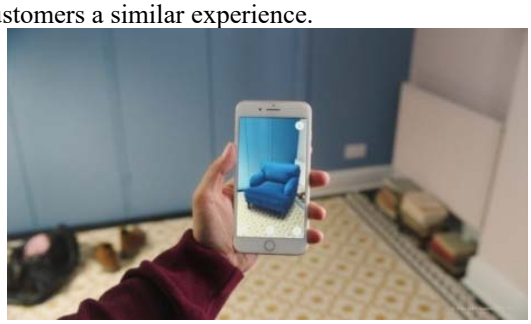


**Image 1: Using AR for better shopping experience**

The AR industry is giving retailers even more reasons to experiment with. For example, with increasing accessibility of goggle technology and virtual reality headsets to the average consumer, they can virtually try on clothes, giving apparel sites an edge over their competition. Further, this may also reduce the number of returns benefiting both the customer and the retailer in many ways.

**3. Blockchain:** Blockchain technology democratizes every piece of information regarding source, packaging, transportation and delivery of the ordered product and offers transparency expected by people. Realizing the importance of blockchain technology, Walmart created two patents one to track 'drone delivered' packages and another for a "smart package" that records location, environmental conditions and more. Blockchain can also streamline the online payment process by allowing ecommerce retailers to accept crypto currency payments.

**4. Chatbots:** Chatbot is a computer program based on an artificial intelligence, machine learning and big data technology. It conducts a conversation via auditory or textual methods. Chatbots store, analyze, remember loads of information and give quick responses to customers. Chatbots are also able to live outside of an ecommerce website. For example, Staples' Facebook Messenger chatbot can locate items and allow customers make purchases within the chat conversation.

**5. Shoppable Videos:** Instead of image and text contents on retailer's sites for marketing videos make more sense to visitors and ultimate buyers. Customers will be able to shop directly from what is called as 'Shoppable Videos'. Marks and Spencers even tried their hands on Shoppable video by selling their new

denim collection. Shoppable video reduce the catalog browsing time.

**6. Storefront Digitizing:** Store purchase sometimes is more satisfactory and reliable rather than online one and because of which to make an impact firms like eBay, Walmart, Delta Airlines, have all started the Storefront Digitizing based on memory mirror technology. The virtual mirror allows customer to see him/herself and visualize how they would look by wearing a particular outfit without literally wearing it [Image 2]. Moreover the mirror is able to store information such as likes, dislikes, and accordingly can interact with them later on arrival of particular item in desired size and colour.



**Image 2: A virtual mirror**

**7. Direct Social Media Purchase:** Social media websites like Facebook, Instagram and Twitter etc. can be used for ecommerce. The customers can now click the 'Buy now' button directly from the site's page and can even complete the online payments.

**8. Drone and Droid Delivery:** Drone, the most pioneering technologies is going to shape up the future retail industries. Flirtey, has already successfully delivered the medicine parcels to particular individual's address. United States and Europe are planning to develop parking places for drones. Drone can fly with 60 miles per hour at an altitude of 400 feet carrying up to 2 pounds. Droid is a small robotic machine equipped with cameras, microphones, GPS tracker and sensors. Droid comes with varying size, shape and are eco friendly. It follows commands and performs accordingly. Droids are able to walk, climb stairs and carry parcels. Droid could quickly and safely deliver the parcel [5].

**9. Omni-Channel Presence/Support:** Recent shopping practices involve cross channel research, consideration, and purchase. According to statistics 90% of consumers anticipate unconstrained interactions across various channels and devices. Video Chat allows face to face interaction with customers, visual demonstration and consultation experience. In Co-browsing, agents and customers are simultaneously on the same page guiding seamlessly to customer. In Screen Sharing customers share their screen with agents to effortlessly sort out any difficulties with filling out forms, completing transactions, etc. Document Interaction interacts with customers' documents safely and includes e-signature technologies for enhanced security. These systems propel an interconnected journey all the way through the purchase.

**10. Extensive Personalization:** As personalization is more appealing it is the biggest trend in ecommerce technology. It is revealed that more than 78% of customers ignore offers that are not personalized. Personalization comes from understanding the customers' tendencies and affiliations. Recent technologies such as Big Data, Machine Learning and AI are able to capture, record every action performed on the internet by almost all consumers leading to volume of records which further can be analyzed to come up with normative personalization in the interest of both businesses and customers.

**11. The Mobile Shift:** In the view to increase its prominence, ecommerce is now shifted to mobile platforms. Businesses are now equipped with mobile friendly technologies. Ecommerce Mobile Apps to, Location based Marketing, VR/AR Guidance and Internet of Things are some of the technologies specially employed in mobile commerce making the entire business a easy go.

**12. Demand driven forecasting:** Amazon patented a "method and system for anticipatory shipping" in 2013. Amazon predicts customer's shopping list and deliver the products to their nearest fulfilment centre – even before the order is placed saving time and efforts [6].

## IV. ADVANTAGES AND DISADVANTAGES OF ECOMMERCE

Field of ecommerce has gained momentum with faster internet connectivity and powerful online tools and became accessible to masses. Today, though it offers number of benefits to manufacturers, suppliers and of course to the customers, few issues such as of security, quality and fraud etc. needs to be taken care of. Some of the advantages and disadvantages of ecommerce are mentioned below.

a) Advantages of ecommerce: Field of ecommerce becoming popular in general as it offers many advantages both to the companies and the customers as well. Some of the advantages of ecommerce are listed below.

- A larger market, display of items on global platform, no geographical restrictions.
- Faster selecting/buying/selling procedure. No time barriers, accessible 24/7.
- Low operational costs and better quality of services. Expenses on TV ads reduced.
- No need of physical setups. Simple to open and run a business.

- Selection of products of different brands without moving around physically.
- Customer insights through tracking and analytics leads to strategic marketing/pricing.
- Fast response to consumer trends and market demands based on streamlined logistics.
- Product demos, reviews, and customer testimonials enhances the chance of sale.
- Personalized Messaging to registered customers improves business.
- Increased sales with instant gratification specially, on purchase of digital goods.
- Ability to scale up (or down) operation quickly in response to market inputs etc.

b) Disadvantages of ecommerce: In spite of these advantages, ecommerce comes with few disadvantages and challenges too and but the same could be sorted out with proper knowledge, care and precaution. The disadvantages are listed below.

- Suppliers' identity is unknown. Any one, good/bad, can be there on the other side.
- Many illegal/bad sites eat up customers' money.
- Malicious hacking enhances customer's risk, legal and financial implications.
- Mechanical failures may hamper the entire processes in unpredictable way.
- Ecommerce sites, service, payment gateways all are prone to cyber attacks/hacking.
- High internet is required, lack of which may result in loss of few customers.
- Credit card fraud is a real and growing problem for online businesses.
- Even a few minutes of downtime/technology hiccups cause a substantial loss.
- Least interactions between customer and company, puts customer loyalty on check.
- Lack of personal and tactile touch to customers may affect overall business slightly.
- Large competition results in reduced pricing and obviously reduced profit.
- Complexity in taxation, regulations and compliance due different territories of sale.

## CONCLUSION

Ecommerce is diverse and interdisciplinary area, where technological issues are taken care of by computer experts while consumer behavioural issues need to be addressed by behavioural scientists and marketing research experts. Though ecommerce is popular among digital natives, it is paving its way to masses in general with the help of relatively new and emerging computing techniques.

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