

UNIT – II

E-Commerce driving forces:

The evolution and growth of e-commerce can be attributed to a combination of technological, marketing and economic forces. Let us discuss some of the driving forces of e-commerce.

Economic Forces That Drives E-Commerce

1. E-commerce enables businesses to interact with suppliers, customers and with players in the distribution channel at a lower cost.
2. The cost of installing and maintaining a website is much cheaper than owning a physical store. This motivates the growth of e-commerce.
3. E-commerce generates greater profits due to less human intervention, lower overhead cost, few clerical errors and more efficiency.
4. The cost of advertising is cheaper and provides access to global market at low cost. This is something which encourages people engaged in business to promote their business through electronic medium.
5. Reduction in communication cost and technological infrastructure expense drive business towards e-business.
6. Increase in competition and the rise in consumer power, 'globalization wave' have forced the business organizations to penetrate into internet world.

Technological Forces That Drives Electronic Commerce

1. Technological advances have made business communication faster, easier, economical and efficient. It has enabled the business to switch over from the local market to the global market.
2. The growing popularity of cyber cafes has created a big role in attracting internet population towards e-commerce.
3. Technological changes have given confidence to consumers to make electronic payments in settlement of financial obligations.

Market Forces That Drives Electronic Commerce

1. Business organizations are able to reach international markets by using electronic medium for enhanced customer support and service.
2. E-commerce enables customers to make product comparison, place orders, track orders and make payments at ease. Due to convenience, customers prefer to purchase their desired goods or services over internet in the online marketplace.

3. E-commerce also allows the customers to choose and order products according to their personal and unique specifications. It paves way for mass customization.
4. The growing internet population stimulates business to switch over from an additional business to e-business.
5. The great variety of commodities available online and reliable payment methods are regarded as contributors to the increase of e-business.
6. Consumers often prefer shopping on the internet due to convenience and the changes in consumer behavior pulls consumer towards e-commerce.

E-commerce Technical Architecture

Every day more and more business transactions are conducted in the Internet under the umbrella of E-Commerce. The main feature that distinguishes E-Commerce from traditional commerce is the ability to conduct business with spatially distributed partners and products, and achieves considerable reduction in human effort and latency time. The size and complexity of E-Commerce systems make the architecture level of design and specification of the overall system a significant issue. From a good design it is possible to assess the quality and performance of the system *before* the system is implemented and deployed. Some of the important properties that can be assessed from a design specification include correctness, service availability, and security of transactions.

client-server architecture:

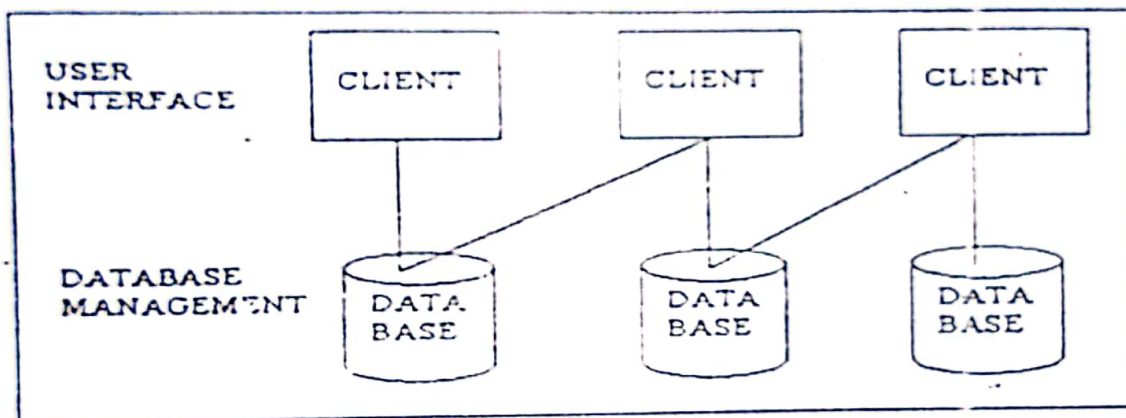
- A client can be an application, which uses a Graphical User Interface (GUI) that sends request to a server for certain services.
- The server is the provider of the services requested by the client.
- In E-commerce, a client refers to a customer who requests for certain services and the server refers to the business application through which the services are provided.
- The business application that provides services is deployed on a Web' server.
- The E - Commerce Web server is a computer program that provides services to "other computer programs and serves requested Hyper Text Mark-up Language (HTML) pages or files.
- In client-server architecture, a machine can be both a client as well as a server.
- There are two types of client server architecture that E-commerce follows: two-tier and three-tier.

E-Commerce System Architecture: Two-tier architecture:

In two-tier client-server architecture the user interface runs on the client and the database is stored on the server. The business application logic can either run on the client or the server. The user application logic can either run on the client or the server. It allows the client processes to run separately from the server processes on different computers.

The client processes provide an interface for the customer that gather and present the data on the computer of the customer. This part of the application is known as presentation layer. The server processes provide an interface with the data store of the business.

This part of the application is known as data layer. The business logic, which validates data, monitors security and permissions and performs other business rules, can be kept either on the client or the server. The following Figure shows the e commerce system two-tier architecture diagram.



E-Commerce System Architecture: Three-tier architecture:

The three-tier architecture emerged in the 1990s to overcome the limitations of the two-tier architecture. In three-tier architecture, the user interface and the business application logic, also known as business rules and data storage and access, are developed and maintained as independent modules.

The three-tier architecture includes three tiers: top tier, middle tier and third tier.

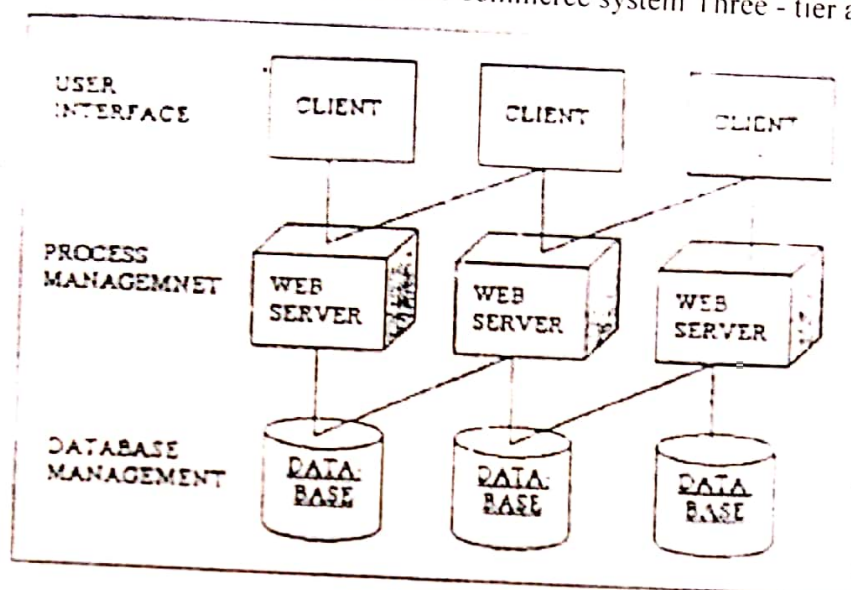
The top tier includes a user interface where user services such as session, text input, and dialog and display management reside.

The middle tier provides process management services such as process development, process monitoring and process resourcing that are shared by the multiple applications.

The third tier provides database management functionality. The data management component ensures that the data is consistent throughout the distributed environment, the centralized process logic in this

architecture, which makes administration easier by localizing the system functionality, is placed on the middle tier.

The following Figure shows the outline of the e commerce system Three - tier architecture diagram.



The client server architecture advantages:

- The client-server architecture provides standardized, abstract interfaces to establish communication between multiple modules. When these modules are combined, they become an integrated business application.
- In the client-server architecture, the functions of a business application are isolated within the smaller business application objects and so application logic can be modified easily.
- In the client-server architecture, a programmer can develop presentation components without knowing the business application logic.

E- Commerce Strategies:

.. An E-Commerce strategy is describing the ambition and key decisions or principles to realise the ambition. This strategy is a summary of how your business is planning to achieve its goals and improve its position in the market

E-Commerce business strategies are similar to the strategies used in any type of business, but the big benefit is the ability to specifically measure the effectiveness of E-Commerce activities. Those choosing to market their products or service online can take advantage of a variety of tools and techniques that are cost effective and relatively easy to implement.

1. OFFER SUBSCRIPTIONS

The E-Commerce subscription space has grown by 100% a year over the past five years.

With E-Commerce subscriptions, you have a huge opportunity to grow your business — and even better, generate recurring revenue. Instead of relying on customers to return to their site and make repeat purchases, online store builds a more predictable revenue through subscriptions.

Subscriptions offer benefits to both customers and E-Commerce businesses. Customers benefit because it's easy; there's no searching for interesting products. For store, it can bank on recurring revenue from each subscriber and also keep its brand and products fresh in the minds of customers time to time. For example

- If you run a florist, offer a weekly flower delivery subscription (or an annual subscription so you never forget those important dates).
- If you run a travel E-Commerce business, send a guidebook for a new location or a collectible from a new country every month.

2. EXPERIMENT WITH DELIVERY OFFERS

People LOVE free delivery. Almost eight out of 10 people said free shipping was the #1 incentive when asked what would make them shop online more often.

Shipping costs are also a key driver of cart abandonment, with over one-third of customers citing shipping costs as a reason for not completing a sale.

Free delivery could be the perfect strategy to help take your business to the next level and grow your revenues.

who always offer free shipping can directly increase revenue by 10%.

Think about how you can make pricing a key part of your E-Commerce strategy moving forward.

Here are a few ways you could make it work:

You could offer free shipping for all customers who register an account with your store.

You could run a free delivery, short-time offer to experiment with free shipping and see how it may affect your sales and revenue.

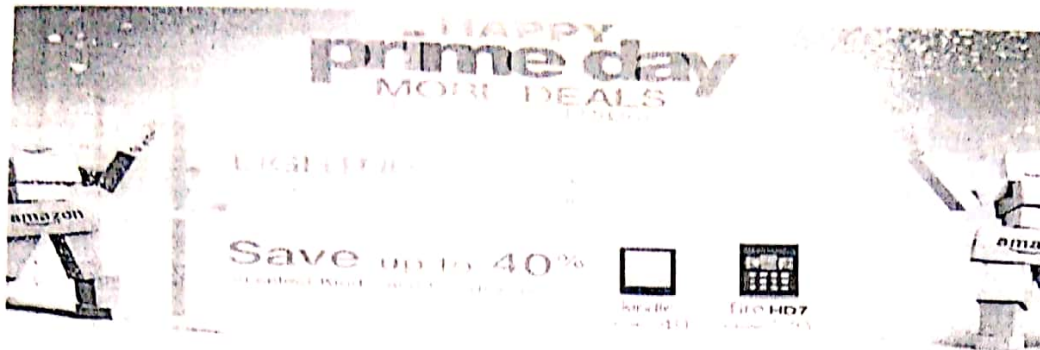
You could offer free shipping if sales exceed a certain value or more to encourage customers to spend a little more.

3. USE URGENCY TO ENCOURAGE ACTION

Scarcity sells. In fact, scarcity can boost sales by up to 226%.

Just look at Amazon Prime Day —for example.

By offering limited-time, limited-stock sales Amazon sold more than 100 million products and exceeded more than \$1 billion in sales, making Prime Day 2018 the biggest sales day in Amazon's history.

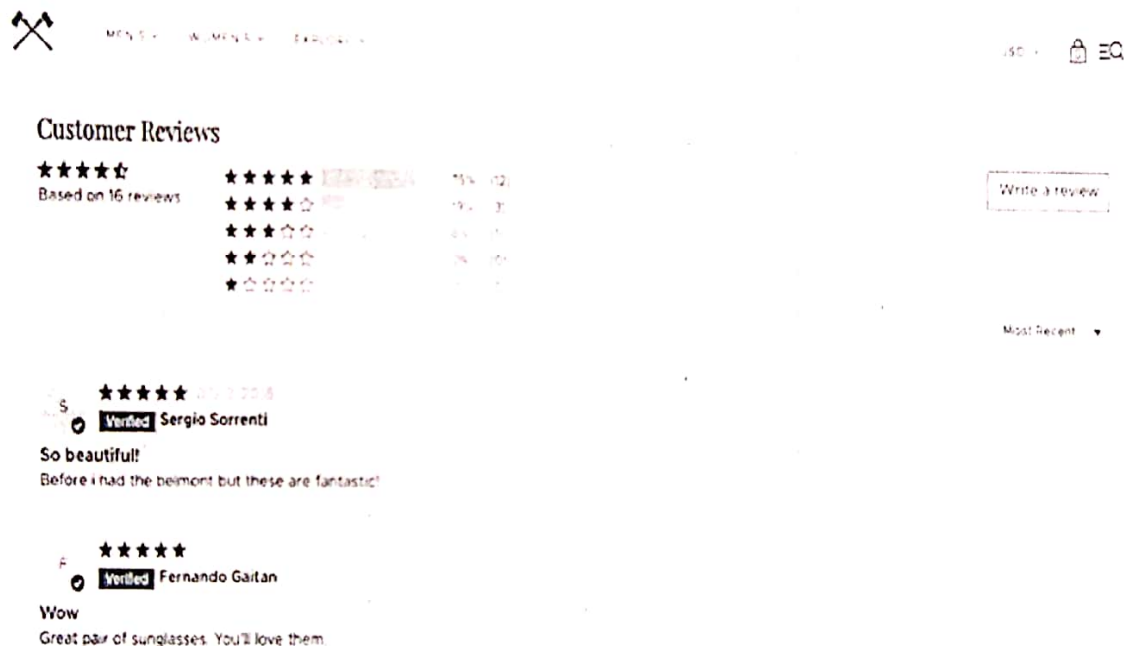


4. ADD REVIEWS AND RATINGS TO YOUR SITE

Product reviews can help you to sell higher-priced products, a study found. Before parting with their hard-earned money, customers want to know that they can trust your brand and your product will offer exactly what is outlined on your sales page.

Reviews are the best way to build this trust.

As soon as a new visitor hits these sites, they can instantly recognize that this is a brand that many others trust and rate highly.



5. OFFER EXCLUSIVE SALES TO EXISTING CUSTOMERS

Acquiring a new customer is anywhere from five to 25 times more expensive than retaining an existing one.

If you want to build a successful E-Commerce business, you'll need to entice customers to return to your store. One of the best ways to do this is through exclusivity and creating personalized offers and discounts for your existing customers. What's great about this is you already have data on your existing customers.

A survey by Accenture focused on personalized retail experiences found that **59% of shoppers like to receive promotional offers for items they are strongly considering.**

This means a personalized sale, offer, or product recommendation will be much better received than a generic message that's sent to your whole customer base.

For example, as Amazon knows my purchase history, it can send me personalized product recommendations.

Try to think about how you can build an E-Commerce strategy that rewards existing customers and keeps them coming back.

6. CREATE A VISUAL STYLE FOR YOUR PRODUCT PHOTOGRAPHY

In the world of E-Commerce, your brand is super important. This is because no matter what you're selling you're always going to have a ton of competition.

Your brand is what will make you stand out from others in your space.

Everywhere your customers can interact with your brand, think about how you can use visuals to stand out and create a familiar feeling so that whenever a customer sees one of your products, they know it's from your business.

The product photos you choose on your website can also help drive sales. A study found that 73% of online shoppers need three or more product images to go ahead with a purchase.

7. CREATE OFFLINE EXPERIENCES FOR CUSTOMERS

Despite the many benefits of E-Commerce for customers, many still prefer to shop in person. A study discovered that there's still a clear preference to shop in physical stores for most product categories.

If you want to make a great impression every time a customer receives one of your products, think about Great packaging and unboxing experience, which can encourage your customers to make a repeat purchase.

Providing a unique unboxing experience can lead to word-of-mouth marketing, as many customers share their unboxing with friends and the wider world via social media.

For example, there are over 700,000 unboxing posts on Instagram alone:

8. BUILD A LOYALTY PROGRAM

As we mentioned earlier, keeping a customer is much cheaper than acquiring a new one. This strategy helps ensure your customers keep on coming back.

A customer loyalty program helps keep your customers loyal by offering:

- Discounts
- Free products and giveaways
- Vouchers and coupons

- Early access to products
- Exclusive content and sales

All of these factors encourage customers to keep returning to your store rather than trying out other shops.

Ex: Amazon Prime is a loyalty program offers free shipping, access to exclusive sales, and plenty of on-demand media content etc

9. OPTIMIZE YOUR PRODUCT DESCRIPTIONS

Product descriptions are an often-overlooked aspect of E-Commerce success.

Your product descriptions give you the chance to:

- Provide product details and specifics to help answer customer questions.
- Reinforce your brand using your own unique style of copy and content
- Even It can have videos for each of its products:

Use your product descriptions as a way to pique your customer's interest and give them everything they need to know before making a purchase — in your own unique way.

10. OFFER INSTANT DISCOUNTS TO NEW CUSTOMERS

Think about how you can grab the attention of your visitors turn them into a lead — or even better, make a direct sale by offering instant discounts.

E-Commerce Essentials:

- (i) Business owners make their customers feel safe when buying merchandise online. Three things that can help online merchants build customer trust are:
 - (a) Clearly stated merchant policies.
 - (b) Fair and prominently displayed refund policies.
 - (c) "Why shopping here is safe" pledges that explain the merchants' security policies.

Online merchants should let customers know that they're doing everything and they can protect customer's personal information. In addition, if businesses are planning to accept credit card orders via the Web, they should make sure that their Internet service provider (ISP) offers an environment that includes a secure web server where these transactions can take place.

- (ii) A secure server allows a connection to take place between itself and another secure server. Secure connections provide three important things where online transactions are concerned: privacy, authentication and message integrity.

When you're viewing web pages or posting information to a secure server, you will notice that "http://" that normally appears in your web address bar changes to "https://". In addition, on most web browsers, the symbol of a closed lock should appear somewhere in the browser's framework as an indicator that you are using a secure connection.

- (iii) ISPs charge extra if a business uses their secure server. While many ISPs offer a secure server as part of their basic plan, there are hosting companies that charge significant monthly fees. Business owners should ask the ISPs they are considering whether there are extra charges.
- (iv) How concerned should online businesses be about credit card fraud on the Web? is the question:
No more concerned than if they accept credit card orders over the telephone, fax, or regular mail -- all of which are known as 'card-not-present' transactions. If fraud occurs in any of these transactions, the business owner typically bears the cost -- so business owners need to do as much as possible to protect against credit card fraud. For example, when choosing an e-commerce package, merchants should make sure that authentication and address verification (AVS) are included. Authentication and AVS ensure that the billing address in the transaction matches that of the credit card holder. They also make sure that the card has not expired and reserve the funds until the merchant can ship the products and settle the transaction.
- (v) While many ISPs are able to provide businesses with a secure server, most do not help set up an online store. Many businesses turn to web development firms, but that can be costly -- tens of thousands of dollars in many cases. Increasingly, businesses are turning to online, integrated services, like Bigstep.com, that provides not only web site hosting but also site building tools, targeted marketing, cataloging and reporting components. Their service makes it easy to build and maintain a professional-looking e-business -- and it's free.
- (vi) For an online store, a merchant account allows a bank to process credit card orders that a business receives from its customers. These days, the process of applying for a merchant's account is similar to that of seeking authorization for a personal loan.

E-Commerce applications:

E-Commerce development and its applications is an unavoidable sector in the present day to day life. Given below are the most common E-Commerce applications.

➤ Retail & wholesale

There are numerous applications for retail as well as wholesale in the case of e-commerce. Here comes e-retailing or may be called as online retailing. This refers to the selling of goods and other services through electronic stores from business to consumers. These are designed and equipped using a shopping cart model and electronic catalog.

➤ Marketing

Using web and e-commerce, data collection about the following are possible

1. Preferences
2. Behavior
3. Needs
4. Buying patterns

The marketing activities like price fixing, product feature, and its enhancement, negotiation, and the relationship with the customer can be made using these.

➤ Finance

E-Commerce is being used by the financial companies to a large extent. By the name finance, we know that there will be customers and transactions. The customers can check the balance in their savings account, as well as their loan account. There are features like transferring of money from and to their own accounts, paying off bills online and also e-banking. Online stock trading is also another feature of e-commerce.

➤ Manufacturing

E-Commerce is included and used in the chain operations (supply) of a company. There are companies that form the electronic exchange. This is by providing buying and selling items together, trading market information and the information of runback office like inventory control. This is a way that speeds up the flow of finished goods and the raw materials among the business community members.

➤ Auctions

E-Commerce customer to customer is direct selling of goods among customers. It includes electronic auctions that involve bidding system. Bidding allows prospective buyers to bid an item. In Airline Company they give bidding opportunity for customers to quote the price for a seat on a specific route, date and time.

➤ Entertainment

E-Commerce application is widely used in entertainment area also for video cataloging, multiplayer games, interactive ads and for online discussion.

➤ Education

In educational training also e-commerce has a major role in interactive education, video conferencing, online class and for connecting different educational training centers.

Advantages of E-Commerce:

E-Commerce advantages can be broadly classified in three major categories –

- Advantages to Organizations
- Advantages to Consumers
- Advantages to Society

Advantages to Organizations

- Using e-commerce, organizations can expand their market to national and international markets with minimum capital investment. An organization can easily locate more customers, best suppliers, and suitable business partners across the globe.
- E-commerce helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.
- E-commerce improves the brand image of the company.
- E-commerce helps organization to provide better customer services.
- E-commerce helps to simplify the business processes and makes them faster and efficient.
- E-commerce reduces the paper work.
- E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.

Advantages to Customers

- It provides 24x7 support. Customers can enquire about a product or service and place orders anytime, anywhere from any location.
- E-commerce application provides users with more options and quicker delivery of products.
- E-commerce application provides users with more options to compare and select the cheaper and better options.
- A customer can put review comments about a product and can see what others are buying, or see the review comments of other customers before making a final purchase.
- E-commerce provides options of virtual auctions.
- It provides readily available information. A customer can see the relevant detailed information within seconds, rather than waiting for days or weeks.
- E-Commerce increases the competition among organizations and as a result, organizations provides substantial discounts to customers.

Advantages to Society

- Customers need not travel to shop a product, thus less traffic on road and low air pollution.
- E-commerce helps in reducing the cost of products, so less affluent people can also afford the products.
- E-commerce has enabled rural areas to access services and products, which are otherwise not available to them.

- E-commerce helps the government to deliver public services such as healthcare, education, social services at a reduced cost and in an improved manner.

Disadvantages of E-Commerce:

The disadvantages of e-commerce can be broadly classified into two major categories –

- Technical disadvantages
- Non-Technical disadvantages

Technical Disadvantages

- There can be lack of system security, reliability or standards owing to poor implementation of e-commerce.
- The software development industry is still evolving and keeps changing rapidly.
- In many countries, network bandwidth might cause an issue.
- Special types of web servers or other software might be required by the vendor, setting the e-commerce environment apart from network servers.
- Sometimes, it becomes difficult to integrate an e-commerce software or website with existing applications or databases.
- There could be software/hardware compatibility issues, as some e-commerce software may be incompatible with some operating system or any other component.

Non-Technical Disadvantages

- **Initial cost** – The cost of creating/building an e-commerce application in-house may be very high. There could be delays in launching an e-Commerce application due to mistakes, and lack of experience.
- **User resistance** – Users may not trust the site being an unknown faceless seller. Such mistrust makes it difficult to convince traditional users to switch from physical stores to online/virtual stores.
- **Security/ Privacy** – It is difficult to ensure the security or privacy on online transactions.
- Lack of touch or feel of products during online shopping is a drawback.
- E-commerce applications are still evolving and changing rapidly.
- Internet access is still not cheaper and is inconvenient to use for many potential customers, for example, those living in remote villages.

Progress of E-Commerce in India:

The e-commerce has transformed the way business is done in India. The Indian e-commerce market is expected to grow to US\$ 200 billion by 2026 from US\$ 38.5 billion as of 2017. Much growth of the industry has been triggered by increasing internet and smartphone penetration. The ongoing digital transformation in the country is expected to increase India's total internet user base to 829 million by 2021 from 604.21 million as of December 2018. India's internet economy is expected to double from US\$125 billion as of April 2017 to US\$ 250 billion by 2020, majorly backed by E-Commerce. India's E-commerce revenue is expected to jump from US\$ 39 billion in 2017 to US\$ 120 billion in 2020, growing at an annual rate of 51 per cent, the highest in the world.

Market Size

Propelled by rising smart phone penetration, the launch of 4G networks and increasing consumer wealth, the Indian e-commerce market is expected to grow to US\$ 200 billion by 2026 from US\$ 38.5 billion in 2017. Online retail sales in India are expected to grow by 31 per cent to touch US\$ 32.70 billion in 2018, led by Flipkart, Amazon India and Paytm Mall.

During 2018, electronics is currently the biggest contributor to online retail sales in India with a share of 48 per cent, followed closely by apparel at 29 per cent.

Investments/ Developments

Some of the major developments in the Indian e-commerce sector are as follows:

- Flipkart, after getting acquired by Walmart for US\$ 16 billion, is expected to launch more offline retail stores in India to promote private labels in segments such as fashion and electronics. In September 2018, Flipkart acquired Israel based analytics start-up Upstream Commerce that will help the firm to price and position its products in an efficient way.
- Paytm has launched its bank - Paytm Payment Bank. Paytm bank is India's first bank with zero charges on online transactions, no minimum balance requirement and free virtual debit card.
- As of June 2018, Google is also planning to enter into the E-commerce space by November 2018. India is expected to be its first market.
- Reliance retail is going to launch online retail this year. It has already launched its food and grocery app for beta testing among its employees.
- E-commerce industry in India witnessed 21 private equity and venture capital deals worth US\$ 2.1 billion in 2017 and 40 deals worth US\$ 1,129 million in the first half of 2018.
- Google and Tata Trust have collaborated for the project 'Internet Saathi' to improve internet penetration among rural women in India.

Government initiatives

Since 2014, the Government of India has announced various initiatives namely, Digital India, Make in India, Start-up India, Skill India and Innovation Fund. The timely and effective implementation of such programs will likely support the e-commerce growth in the country. Some of the major initiatives taken by the government to promote the e-commerce sector in India are as follows:

- In order to increase the participation of foreign players in the e-commerce field, the Indian Government hiked the limit of foreign direct investment (FDI) in the E-commerce marketplace model for up to 100 per cent (in B2B models).
- The heavy investment of Government of India in rolling out the fiber network for 5G will help boost E-Commerce in India
- In the Union Budget of 2018-19, government has allocated Rs 8,000 crore (US\$ 1.24 billion) to BharatNet Project, to provide broadband services to 150,000 gram panchayats
- As of August 2018, the government is working on the second draft of e-commerce policy, incorporating inputs from various industry stakeholders.

Achievements

Following are the achievements of the government in the past four years:

- Under the Digital India movement, government launched various initiatives like Udaan, Umang, Start-up India Portal etc.
- Under the project 'Internet Saathi', the government has influenced over 16 million women in India and reached 166,000 villages
- Udaan, a B2B online trade platform that connect small and medium size manufacturers and wholesalers with online retailers and also provide them logistics, payments and technology support, has sellers in over 80 cities of India and delivers to over 500 cities.
- According to the UN's eGovernance index, India has jumped 11 positions to 107 in 2016 from 2018 in 2014.
- The government introduced Bharat Interface for Money (BHIM), a simple mobile based platform for digital payments.

Road Ahead

The e-commerce industry been directly impacting the micro, small & medium enterprises (MSME) in India by providing means of financing, technology and training and has a favourable cascading effect on other industries as well. The Indian e-commerce industry has been on an upward growth trajectory and is expected to surpass the US to become the second largest e-commerce market in the world by 2034.