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The Digital Revolution in India and the World

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Introduction

There has been comprehensive discussion on the process of globalization and how the world is getting more integrated closer into a Global Smart City. It has been vision of many leaders from developing nations to bring fore the digital revolution and integrating their citizens to the government for more accessibility, approachability and transparency among their citizens and the public and private organizations involved. It was the vision of the former Indian President, Dr. A.P. J. Abdul Kalam towards a Digital India. He set himself as an example for the youth by excelling in his field of Space, Aeronautical and Defense Sciences. The Indian Prime Minister, Narendra Modi and his predecessors have worked towards this dream. And the above quote encapsules the raw talent and ambition in the Indian youth that exist and to provide opportunities for the youth to channel this ambition to a productive young citizen's contribution to the Indian's economic growth and development.

The process of globalization has been in existence since men know how to communicate. And the world is rapidly communicating in increasing broadband speed. The consumers have change and they have become more sophisticated by utilizing the internet technologies in order to balance their work and personal life more efficiently and effectively, improving on their productive. Thus, this change in lifestyles has reflected on the products and services and their quality. Therefore, the business platforms have change in the last three decades. Product and services have become

more accessible and price competitive. And the consumers are aware of this change, creating a more transparent environment. So a consumer can order an Arabica Coffee produced in India, from anywhere in the world. The consistent development of logistics has helped in facilitating the growth of e-commerce, making the whole World a giant global super market.

The Digital Revolution: The Internet and the Information Age

Also known as the Third Industrial Revolution, the Digital revolution is marked with the shift of mechanical and analogue technology to digital technology, Digital refers to expression in the a series of 0s and 1s, typically represented by values of physical quantities such as magnetic polarization and voltage. In the late 1950s to the late 1970s, the shift began with the adoption and proliferation of digital record keeping and digital computers (Schoenherr, 2004). The phrase refers to the changes brought about by digital computing and communication technology from the latter part of the 20th century[2]. Thus, history can be dividing into Agriculture revolution, Industrial revolution and the Digital revolution.

The technology derived from mass production along with use of digital logic circuits led to the development of information technology devices like the computer, the digital cellular phones and the Internet. Theses technological innovations have changed the traditional production and business techniques (Bojanova, 2014). The economic philosophy of the Digital Revolution lies in the parameters of the Schumpeterian theory of socio economics, the concept of *"creative destruction"* where the processes of various social fragments is modernize which includes its economic, social, cultural and political organizations[6] (Freeman & Louca, 2002). Thus, in the digital revolution, the force for this creative destruction is the technological change. This revolution does not mean the end of the other latter revolutions, i.e., agricultural or industrial revolution but an extension of those where there the key changes are driven through digitalization of existing technologies.

Internet, Computers & Smart Phones: Reshaping the Urban life

It is difficult to imagine a World without internet. Almost everything industrious or productive is powered by Internet. With the advent of the Internet, the last decade has seen many changes in terms of how we perceive our technology in daily lives. The Urban population is dependent on their smart phones as they have become an extension to their physical bodies that helps in completing their daily tasks. A loss of these devices is equivalent to a loss in their work as they store all their personal and business contacts, work schedules, message & emails which are hard to retrieve. There are so many examples that can be taken from our lives. For instance, one can communicate and exchange information instantly through various platforms from any corner of the world, even share live videos and pictures of our daily lives. Information can be accessed anywhere at any time and even the Oxford Dictionary has included

the verb *"to google"* to provide as an example to this phenomenon. And with devices like Amazon Echo, a lot of information can be accessed without the need type or search on a computer or smart phone. This has allowed us to make decisions easier as one can save time from the physical search of accessing a browser by few seconds. The Internet and the constant development of the technology that utilizes, has also change the social fabric of the society. As leaders are talking of developing smart cities, people are developing smart classes where education is live streamed online to remote areas where physical access is difficult. Internet has been boon to those communities and regions where there was insignificant development. However, internet has also posed a lot of lifestyle problems and diseases across all the age group of the society.

One of the problems of internet is information overload. As there is abundance information available, it is difficult to filter through information that is relevant to a given problem to an individual. In fact with more options given, an individual is in the midst of dilemma and confusion on choosing among the best alternatives, diluting the focal point of the problem. Another common problem is the gap between the generations are widening deeply with further advancement in technology. The older generations have trouble connecting with the younger generations as the way they process information and the way the younger generation process information are different in the process of thought and technology that is used around it. Thus, with so much of information overload, there is also isolation in relations with rapid evolution of thoughts of various individuals; the pace of the evolution can be different which has brought about strains in relationships between people and society. In the recent years, there has been an increase in cases related to violence and isolation among children. The most recent event that highlights the negative effects of Internet is the success of the online game *"The Blue Whale"*, where children and young adults are targeted with their problems with isolation and asking them to complete inhuman activities from hurting themselves to cases of suicides. The"Tik Tok" gaming in Indonesia has interfered by the government to regulate.

Due to widening of gap between the generations and unsupervised filtration of information from the Internet, there has been numerous social and psychological problems among the young generation with the older generation are unable help as there is difference on how information is being processed and communicated. Thus, with technology that has provided cost and time efficient processes for daily management of life has led to many other social complications with the family and social fabrics, that irrespective of the success of the advancement of technology, if there is no further development strengthening relation among the members of the society, this technology can cause more isolation between individual and dysfunctional relations among people.

Internet and its technology: Tapping the Potential Consumers

Since the discovery of the usages of the internet during the 1960s and its increasing accessibility for the public, the number of internet users has increased tremendously. From the early 1990s, the number of internet users comprises of 0.4% of the total world population in 1995 to 54.4% of the world population in the end of 2017. Within the span of a quarter Century, more than half of the population is online and accessible by any one and anywhere. In that span of time, ordinary citizens found and discovered various ways to improve their lives with small adjustments in the available technology that could utilize the internet in a more productive way. The founders of Apple, IBM and Microsoft have change the way one perceive their work, whether professional or personal. They helped in creating tools of communication and productivity that were efficient and effective, and improving our life styles and businesses. As one can observe from the table, every year, there has been an increase in the number of internet user globally. The largest increase happened as the world was entering the new millennium. And thereon, there was fluctuating rate of increase.

Table 1: Number and Growth of Internet Users

Year	Number of User (in millions)	Growth Rate (Percentage)
1996	16	-
1997	36	125.00
1998	70	94.44
1999	147	110.00
2000	361	145.58
2001	513	42.11
2002	569	10.92
2003	719	26.36
2004	817	13.63
2005	1023	25.21
2006	1093	6.84
2007	1319	20.68
2008	1574	19.33
2009	1802	14.49
2010	1971	9.38
2011	2267	15.02
2012	2497	10.15
2013	2802	12.21
2014	3079	9.89
2015	3366	9.32
2016	3696	9.80
2017	4157	12.47

For instance, there is an average rate of increase 15.22% between the years 2001 to 2005 and there was a sudden dip between 2005 to 2006 with an increase rate at 6.84%. There is a significant decrease in the growth rate of the number of internet users in every 4 to 5 years.

There could be many factors that contributed to this phenomenon but that would be based on individual country's policy. Thus, this makes it hard to judge the causes behind the fluctuating rates on a global level. The constant rise of growth in the number of internet, have created opportunities for many individuals and companies, like Jeff Bezos of Amazon.in, to enter online/virtual markets. For instance, in the case of Amazon.in, Jeff Bezos had an idea to sell books online as they are small and easy to ship. Moreover, he provided platform for publishers and their consumers to discuss product development and improvement as consumers directly reviewed the books on the website which allowed the publishers to understand the demand trend of books from the consumers. His initial idea worked and he gradually progressed on selling other items in similar mode, building a company that in 5 years of its creation will be worth $500 million dollars.

Figure 1: Penetration of the Internet, Penetration Rate and Number of Internet Users
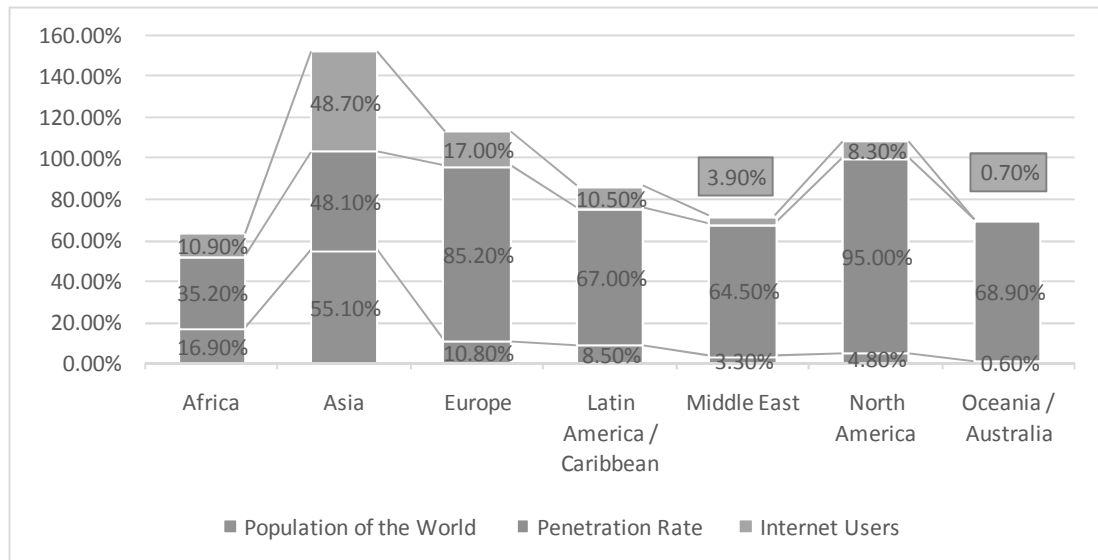

Source: The World Internet Statistics

The Internet Technologies

As the name suggest, the internet technology involves all those technology that utilizes the services of the internet. Ever since its inception to the public in the late 1960s, the Internet technology has developed rapidly both in terms of hardware and software technologies. The most common internet technology available is the Android based technology or iOS based technology. The first I phone was introduced in 2000s and ever since then, there has been rapid innovation in terms of interne-t technology related to telecommunication. The following passages will discuss about various internet technology available to the public.

- **The Smart Phones**

The Global smartphones sales to end users from 1st quarter 2009 to 1st quarter 2018, by operating system (in million units) is shown in the following chart.

Figure 1: The Global Smart Phone Sales
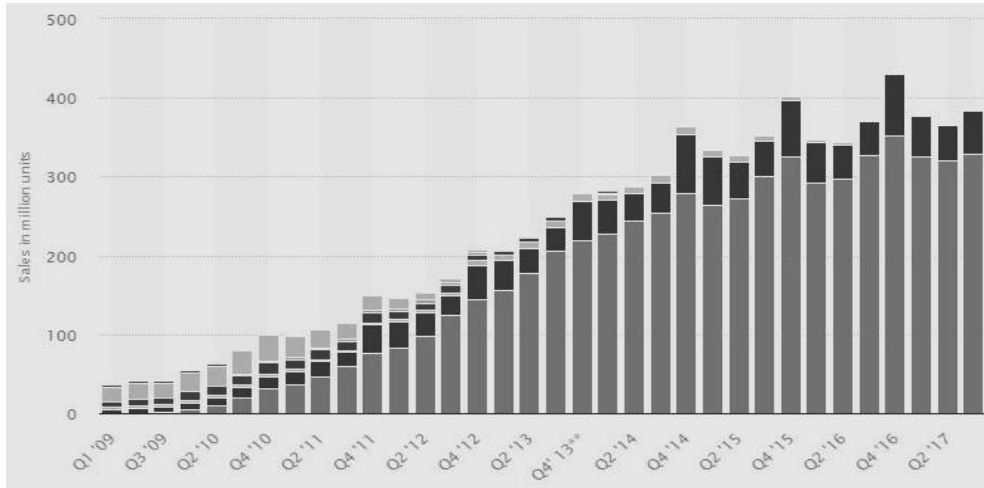
Source: Statista.com

The above figure shows the global smartphone sales to end users based on the operating system from the 2009 to 2017. In the first quarter of 2018, 54.06 million smartphones with their iOS were sold by Apple. In 2016, around 1.5 billion smartphones were sold around the world. There has been an increase in the volume of smartphone sales over the last few years. In 2009, an estimation of 170 million smartphones were sold around the world By 2015, this figure increase to more than 1.4 billion, generating almost $400 billion in revenue. The number of smartphone users is predicted to surpass the 2.7 billion mark by 2019.

In 2007, the Android was introduced. It has been the leading operating system since early 2011, after taking over the leading position from Symbian OS. As the Symbian's sales declined to about 28 million units in 2012, the number of Android smartphones increased from about 220 million units in 2011 to around 1.2 billion in 2015. Android's market share jumped to 82 percent by the end of 2016 from 2 percent in 2009. This growth can be mainly attributed to the fact that many smartphone manufacturers, like Sony, Samsung and HTC, have all built phones designed specifically for the Android system.

Along with the decline of Symbian and the increasing popularity of Android, RIM, which was the second biggest operating system at one point, saw its sales market share drop from about 20 percent in the beginning of 2009 to less than one percent in 2013. The sales of RIM smartphones declined from around 50 million in 2011 to just over four million in 2015. Meanwhile, Apple's iOS rose as the second most popular operating system in the world, accounting for around 17 to 24 percent of

the market in the last few years. In 2015, Apple sold about 225 million iPhones which run on the iOS operating system. Microsoft's operating system is the third most popular operating system in the world, as the company sold around 26 million Windows Phone smartphones in 2015.

- **The Internet browser**

According to the following chart, the Google Chrome is the most preferred browser used by the world, followed by Apple's Safari, Alibaba's UC browser Fire Fox, Opera, Microsoft Internet Explorer, Samsung, Edge and finally, the android browser. Google's Chrome dominates the market due to the search engine that Google provides that gives optimized results. Global market share held by leading internet browsers from January 2012 to May 2018

Figure 2: Market Share of the Internet Browser
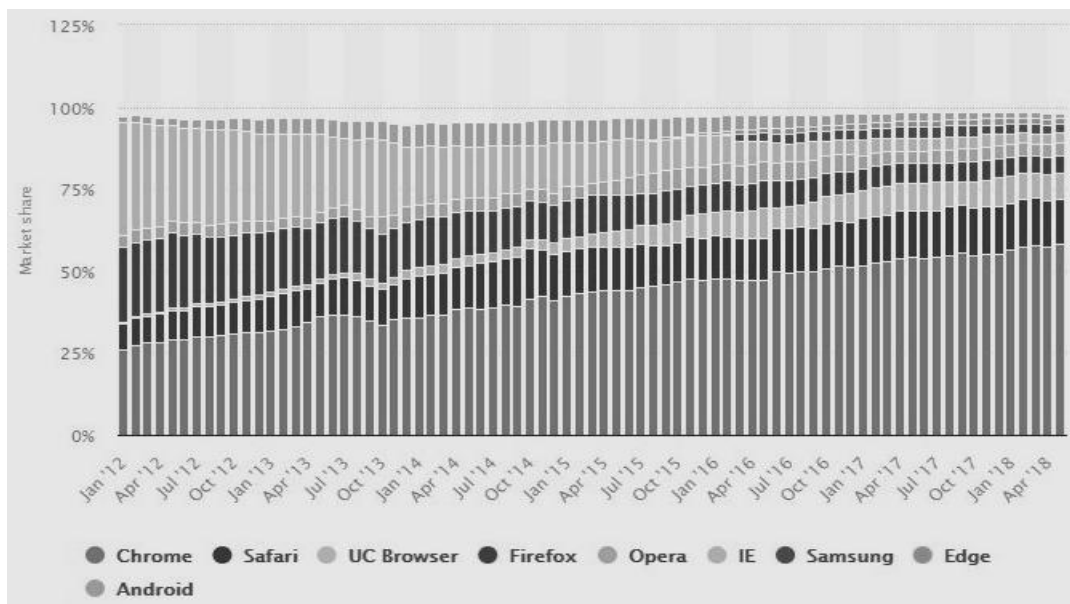
E Commerce: The Business Fueled by Internet

At the end of 2017, the world was in craze with a new technology. Bit coins and block chains. But by middle of 2018, these phenomenon's simmer down to another passing news. However, it brought the lay man to the notice the significance of Internet in the future. The Modern world has digitalized every process except the manufacturing. In fact, every other process except of production of goods has been digitalizing, making the world into one big global city where one is available in a click of a button on a screen. This advancement was possible due to the development in the methods of communication. Man is a social being that seeks constant interaction with its surroundings. That's how they survived. They observe, gather information, process it and implement it for their day to day survival. It is human nature. The early

man, they would communicate by fluctuating their pitches and volumes that had certain meaning. Later they develop a better means of communicating while they used drawings in order to communicate in written. The ancient Egyptian were known for their pictorial language, the hieroglyphic. However, the written script was developing further in all civilizations.

As development, inventions and discoveries were made, man progressed in making his life simpler. Communication and transportations were developed. And a revolution of happened at the advent of the industrial period. Then telegraph was discovered were people could communicate in a certain distances using optical fiber. Later it was developed further by Samuel Morse and other inventors in the 1830s and 1840s by using electricity. The message written on was known as the telegram and the language used for writing telegraphic messages were known as Morse code. Three decades since the development of the Morse code, a man called Alexander Graham bell invented a device that could transmit sounds through the use of electricity from one room to another. His invention has propounded various improvements that allowed us to communicate seamlessly in today's age. Thus this advancement of internet was centuries of continuous development and improvement by many inventors.

However the power of internet could not be harnessed without the discovery of computers. Initially, computers were simple calculators that helped in making long calculation easier. Soon it was further developed in the World War II and by the 1950s, the US, the UK and France were awarding defence projects to develop faster and efficient computers along that could communicate and transmit information in real time. This was during the Cold War when information was the weapon used by nations after the World War II. Thus development in information technology and communication became imperative.

Soon as communication developed, so did the daily lives of people who relied on information for their work. The electronic mail (email) was discovered where people communicated in real time. And many businesses adapted the new technology to communicate efficiently among various departments. Various National Agencies and Governments in the world conducted their affairs and communications through wide area network and land area networks, a protocol point where internet began. These were the n commercialese and they were accessible to the public and other businesses also. Thus many companies adopted these technologies and synergized their process integrating them into their daily process. The first public usage was the email where people communicated daily for their personal and professional work. With the development of phone to cellular phones, most people could access any person in time and place with a couple of numbers. This brought about arrays of services that could be used which included basic text messaging and social sharing platforms like

Orkut and Hi5. By early 2000, a faster way of communication was developed through development of various programs and a more efficient social platform was developed like Facebook, WhatsApp and Instagram.

Definition of E-Commerce

According to Organization for Economic Cooperation and Development (OECD), "An e commerce transaction is the sale or purchase of goods or services, conducted over computer network by methods designed specifically for the purpose of receiving or placing orders. The goods or services do not have to be conducted online. An e commerce transaction can be between enterprises, households, individuals, governments, and other public or private organizations." They further explained that such transactions or orders include those made over the web, extranet or electronic data interchange. The type of transaction is defined by the method of placing the order. However, such transactions don not include those made over the telephone, facsimile (fax), manually typed mails either email or postal mails for orders.

The Global Growth and Development of E Commerce

**Figure 2: Number of Digital Buyers Worldwide from 2014 to 2021 (in Billions)**
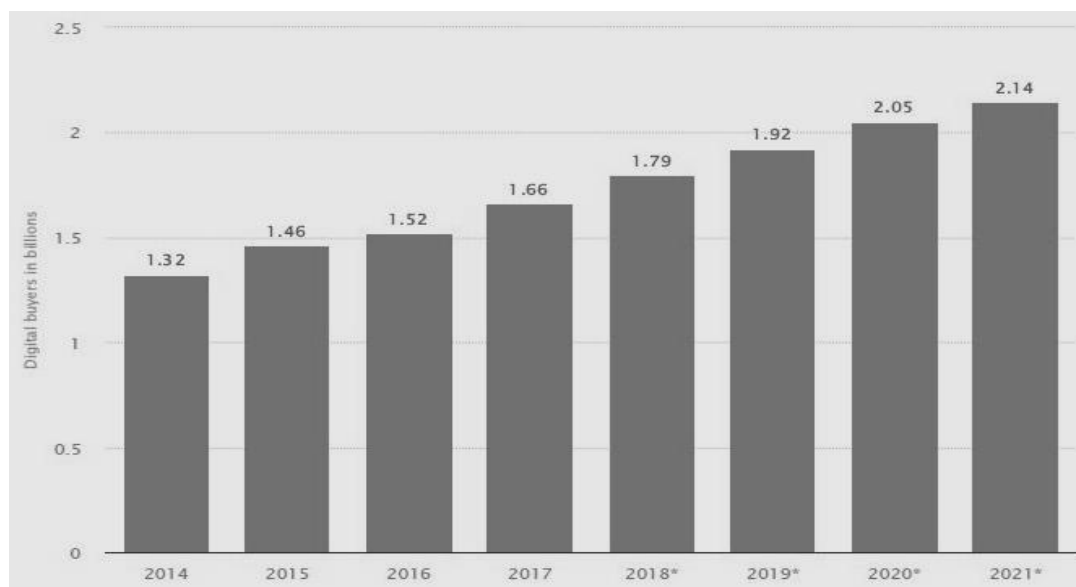
Since 2014, these have been a steady increase in the number of digital buyers. It is predicted that there will be 2.14 billion digital buyers worldwide. With more than 7 billion population in the world, more than a quarter of its population is online and shopping by 2021. Thus the online market is expanding, creating more opportunities for entrepreneurs and startups. There are many reasons for the growth of e commerce globally in terms of numbers and sales. The first and prime reasons is the fast accessibility of the internet and availability of advance telecommunication technologies, The evolution of the telecommunication technologies has paved way in

innovative and productive business processes. The whole Business Processing Outsourcing companies have given opportunities to millions of people from developing nations to work, like India and Philippines. In fact, India wouldn't be one of the fastest growing economies without the rapid growth and expansion of their Information Technologies (IT) industry, and this is possible through adoption and localization of IT processes that is suited for the available human capital of the country,

The next reason is the constant localization of products and services by multinational companies that suits the demand of the local markets. The FMCG is the perfect example where companies like Frito Lays and Coco Cola have deigned product and marketing strategies that appease the local markets. Another reason is the development of website content according to number of languages spoken in the world. The top most languages spoken in the world are Chinese (Mandarin), Spanish, English, Arabic and Hindi. However the top 5 common languages used in the Internet as of June 2017 are English, Chinese, Spanish, Arabic & Portuguese, with 25.3 % from English speaker's communities. Thus, from the population of digital buyer in 2017 with 1.66 billion, from which nearly 25 % can converse and comprehend in English, making the largest consumers on the internet. The growth of mobile commerce has significant drive for the growth of e commerce. As per the diagram below, the primary device used for digital shopping in the internet in 2017 is desktop/laptop. However, according to Statista.com, 43% of the mobile users worldwide shops online.

Figure 3: The Device Usage and Frequency of Digital Shopping Worldwide in 2017
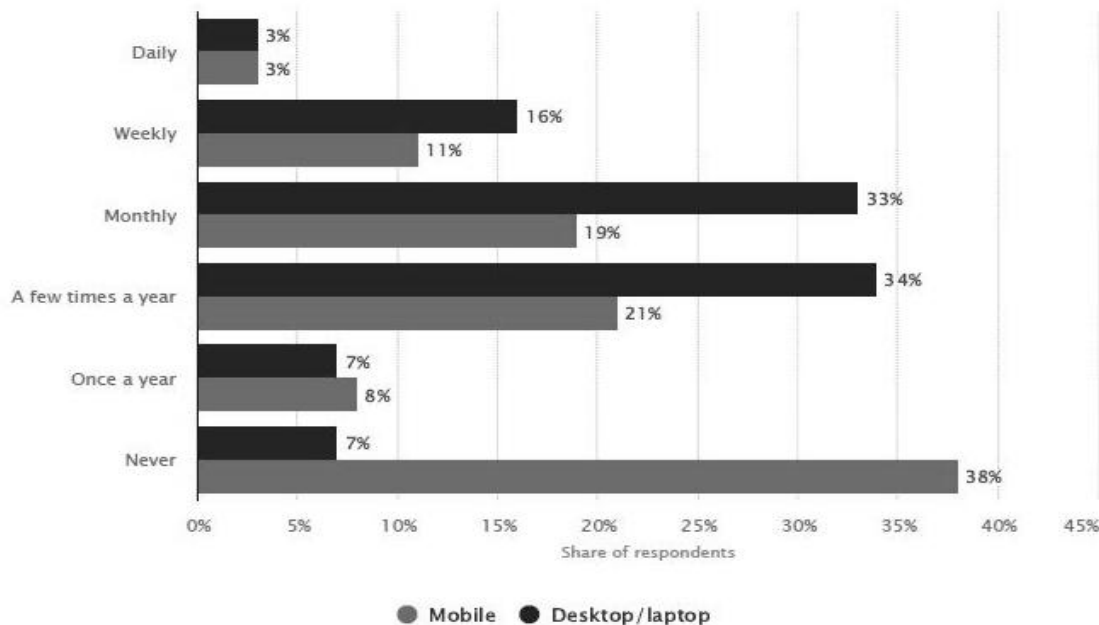
The Growth and Development of E Commerce in India

As of July 2017, India has 470 million internet users. India is only behind China in terms of the largest internet user base in the world but the penetration rate of e commerce is lower than the potential rate, despite the new entrants of 6 million every month. Thus, India is in itself a large consumer market.

Figure 4: The E Commerce Industrial Growth
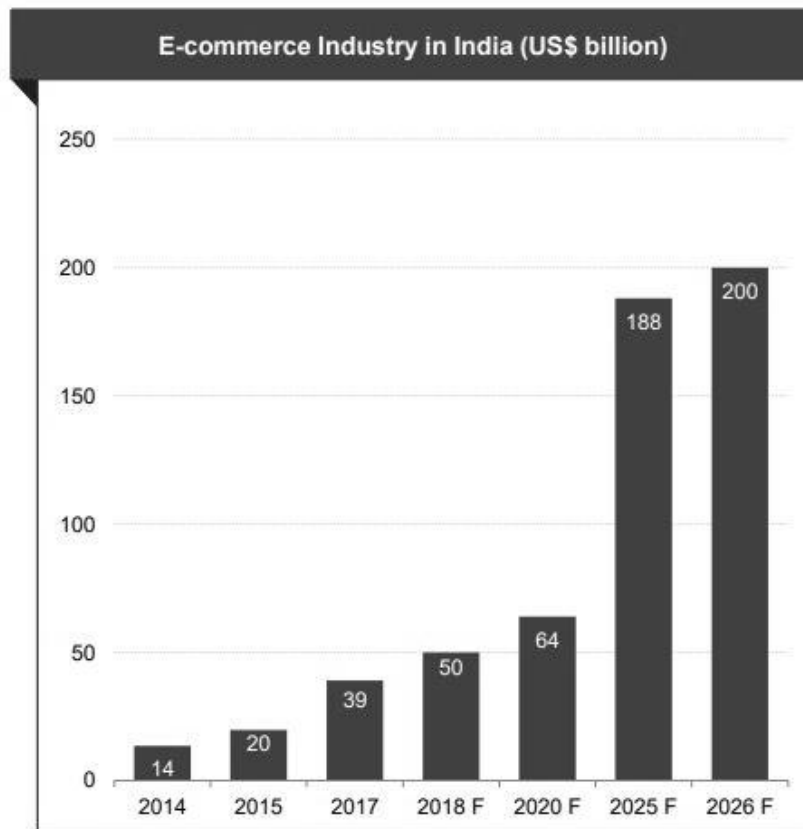
The Indian e commerce market is expected to grow from $38.5 billion in 2017 to $200 billion in 2026. This growth has been fueled by the rising smartphones penetration, the launch of 4G networks and increasing consumer wealth. Like many emerging economies. The e commerce is increasingly attracting customers from Tier 2 and 3 cities where the access is limited but the aspiration is high. Thus the demand for e commerce is also driven in meeting these expectations. Many established businesses like Life Style and Shopper stop have setup their online transaction channels as there as benefits in online trading. With the change in working habits, many consumers are adapting to convenience, creating a demand online purchase for food and grocery which are met by companies like Grofers & Big Baskets.

Figure 5: Shares of Various Segments in E-commerce Retail by Value
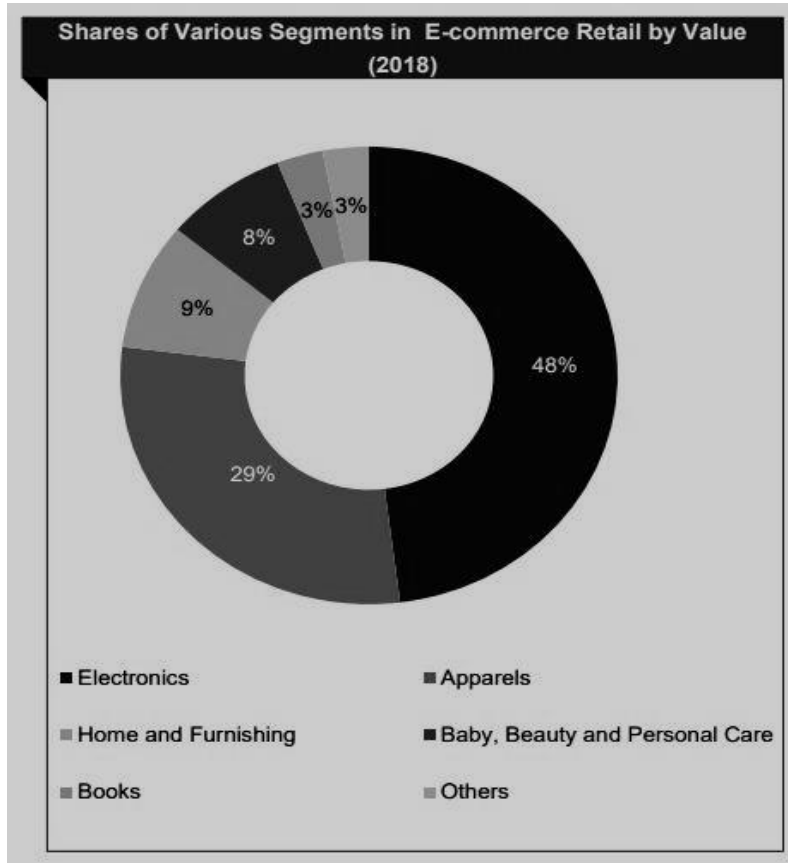
As of 2017, the estimated gross merchandise value of the Indian online retail market is US$ 17.8 billion. The online retail sales in India are expected to grow by 31% in tune to 32.70 USD billion. And as per the above figure, electronic is the largest contributor to online retail sales in India with a share of 48%, followed by apparel at 29 %. The growth is also fueled by the India Government's initiatives that began in 2014 with "Digital India". According to the Indian Union Budget 2017, following were the initiatives taken by the government to facilitate the growth of e commerce in India:

- Digital India, Make in India, Start up India, Skill India and Innovation Fund were among the few initiatives undertaken in 2014 to support the e commerce growth in the country.

- In the 2018-29 Union Budget, Rs. 8000 crore (US$ 1.24 billion) has been allocated for the Bharat Net Project, to provide broadband services to 150000 gram panchayats. The target of the project is to connect 25000 gram panchayats by March 2019. There are also initiatives to setup 500,000 Wi-Fi hotspots for providing broadband service to 50 million rural citizens.

- The State/UT Startup Ranking framework 2018 was released by the Department of Industrial Policy & Promotion under "Startup India" initiative to promote competition among states and union territories to create conducive eco systems for startups and regularly assess the program made by then on various fronts.

- The government has launched the BHIM app, which will help in increasing digital payments in the country. There are currently 12.5 million users for the BHIM app. In order to promote the scheme, the government has adopted two initiatives, referral Bonus schemes for individual and a Cashback scheme for merchants.

- The limit of foreign direct investment (FDI) in the E commerce market place model has been increased to 100% (for B2B models) this was initiated to increase the participation of foreign players in the field of e commerce.

- Rs. 153.5 crore (23.8 USD million) have been distributed to 1 million customers for opting digital payments under the Lucky Grahak Yojana and Digi Dhan Vyapar Yojana.

- An e commerce portal, TRIFED and an m-commerce portal, "Tribes India" which will enable 55000 tribal artisans to get access to international markets.

According to the Price water house Coopers report *"Evolution of e commerce in India",* the following are the characteristics that define the unique selling point:

- **Cash on Delivery**

Indian economy can be described as cash economy where the consumer's buying behavior involves an initial inspection of the product from different perspectives and payment. Further, consumers in India have difficulty in extending trust on the transport logistics while delivery of the products. This has resulted in a unique delivery system as *"cash on delivery"* as a preferred payment option of the larger population of the Indian consumer buying online. The system extended to *"pay on deliver"* system where consumers have payment option of using their debit/credit card facilities or various digital payments like e wallets or UPI.

- **Product Return Process**

People in India expect a seamless and convenient return process. In bid to develop trust and confidence, an option was made available to return the purchased good on behalf of the seller. This has resulted in better return of good process and a positive word of mouth.

- **Home Delivery**

Another characteristic of the ecommerce in India is free and quick home deliver. Though this is an unsustainable option in the long run but in order to compete with other retailers, this convenience has to be offered.

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