

Impact of COVID-19 on Indian IT-Sector: A Comprehensive Pre and Post Analysis

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ABSTRACT: The Indian IT sector is worth Billions of Dollars. The IT sector's contribution to GDP has been increased from 1.2% in 1998 to 9.5% in 2015. The contribution of the IT Industry towards India's GDP has led to the steady growth of the Indian economy. India's IT sector is regarded as a hub of innovations. Providing a world-class technological solution across the globe. Different global companies and organizations have established their offices & workplaces here in India like Google, Microsoft, Foxconn, Accenture, etc. The IT sector has helped the Indian economy from an agricultural-based economy to a knowledge-driven economy by directly generating over 10 million employments. It is believed that India succeeded in the IT sector because of its direct connection to the world economy. India started to globalize its economy in the mid-1980s. India's IT sector has evolved rapidly and stood at US \$ 177 Billion in 2019 witnessing a growth of 6.1% year on year. It is estimated that the size of the industry will grow to US \$ 350 Billion by 2025 [1]. But, The IT sector has been facing a crisis in recent times due to the outbreak of COVID-19. This outbreak is expected to have a marked impact on the World economy. The IT sector which is based on the development and distribution of technologically based goods and services globally will witness more disturbances. Therefore an attempt has been made to analyze the impact of COVID-19 on various prominent applications & phases present in the IT Industry such as E-Commerce, E-Learning, Cloud Services, Telecommunication, Digital Marketing, etc. Also, compare the performance of these phases for the pre and post period of COVID-19.

KEYWORDS: COVID-19, Impact on IT, Information Technology.

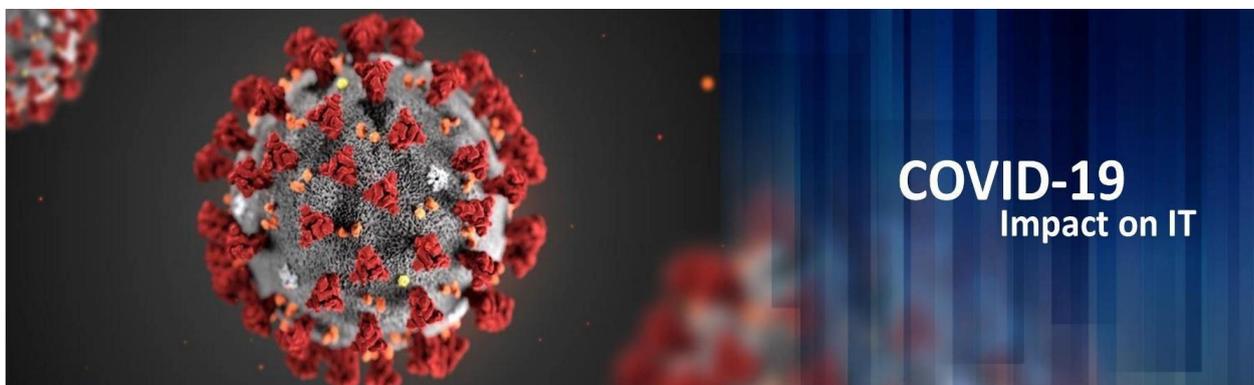


Fig.1 Impact of COVID-19 on IT

Image Source: www.dukehealth.org

I. INTRODUCTION

Coronavirus outbreak is declared as a global pandemic by the World Health Organisation. The worldwide spread of diseases in an uncontrolled manner is referred to as pandemic, and COVID-19 is one of them which showed severe catastrophic consequences. Due to the rapid increase in the number of cases & deaths because of COVID-19. The government of India took deliberate steps ensuring the safety of its citizens and the future of the country. On 24th March 2020 night at 8 pm, Prime Minister of India Mr. Narendra Modi in his unscheduled television address to the nation announced the world's largest lockdown, asking 1.3 Billion Indians to stay home for 21 days to slow and eradicate the spread of COVID-19 [2]. As a result, the country went under total lockdown and the people were advised to adopt and accept home quarantine. Correspondingly, the IT sector has organized to adapt to these situations by allowing its employees to work from home [3]. This led to a significant hike in Internet usage as well as various other applications regarding information technology across the country. In the times where different sectors are facing catastrophe. The IT sector seems to be having an evenhanded performance. The recent lockdown situation and clampdown on the world

economy on account of COVID-19 headway is expected to impact skeptically on the IT sector.

II. OBJECTIVES

1. To Study about COVID-19
2. To Study the Impact of COVID-19 on Indian IT sector

III. RESEARCH METHODOLOGY

Research is used to identify, select, process, and analyze information about a topic that allows the reader to critically evaluate the study and its validity[4]. This is the study of the impact of COVID-19 on Information Technology including cloud computing, E-learning, E-commerce, Gaming, Online communication platforms, Digital Marketing, and many more. This study makes use of Secondary data, the information provided by various websites, publications, and other online sources. We are analyzing the facts with our best knowledge using the authenticated sources after the lock-down of 2 weeks in India.

The pandemic COVID-19: Official name of COVID-19 is given by ICTV as severe acute respiratory syndrome coronavirus 2(SARS-CoV-2). It is an infectious disease which spreads droplets of saliva or discharge from the nose when an infected person sneezes[5]. Most of the peoples show mild symptoms of being infected and which makes it difficult to identify. The rate at which the virus is spreading is referred to as R_0 , which is the concept of epidemiology. R_0 is known as the "Reproduction rate", which is defined as the rate at which the virus is transmitting through the infected person [6].

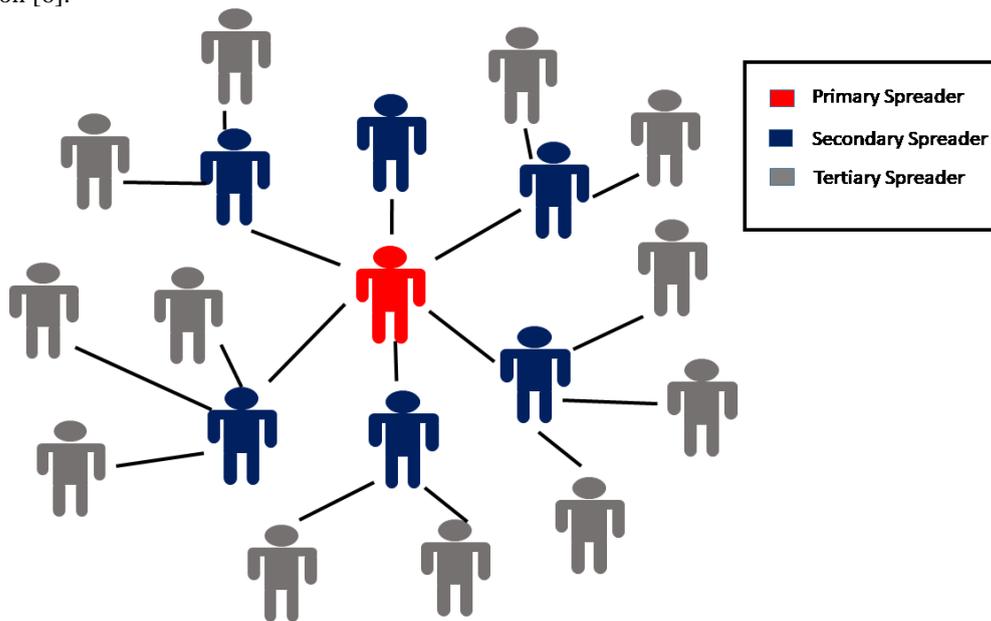


Fig.2 R-Naught (R_0)

At present, there is no vaccine available for covid19 but we can prevent it from spreading by Washing our hands for at least 20 sec after an interval of every 30min with alcohol-based sanitizers, By maintaining the proper distance of about 3 feet as the virus spreads through the droplets of an infected person, Cover your nose mouth with a tissue while sneezing and coughing, Don't touch eyes, nose, and mouth frequently [7].

Impact of covid19 on Information Technology:

IT Industry is affected a lot due to this global pandemic as there is a great disturbance in the IT sector because of it. After the deceleration of COVID-19 as a pandemic, the government of India took several steps among which the major step of implementing lockdown. Due to this lockdown, all the IT Industries had to put their work from home which increased the use of resources like cloud computing, Online communication platforms, and the use of server-based technology. Lockdown is badly affecting the Information Technology sector which is forcing the biggest IT giants of

India like TCS, Infosys, Wipro, etc to trim their employees and to reduce the size of bulk-hiring in order to ensure the cost-cutting. Work from home culture is in huge trend and most of the IT companies are giving guidelines to follow work from home culture. Even after this global pandemic, In IT industries Social distancing should be a norm that should be supported by the use of separate cubicles and online meetings to ensure the security of employees.

1. Cloud Computing: It is the service in which we use the virtual servers or machines for storing and accessing our data rather than storing it on our local machine. Some are AWS (Amazon web services), Google cloud, etc. As there is a situation of lockdown, all the companies have shifted their work from home and put all the data on clouds and servers which increased the usage of cloud computing. The rate at which India is adopting the cloud-based services is 6.0% as compared to the global average economy of 7.9%. The cloud services market in India is expected to grow at a rate of 38% from 2017 total \$1.81 billion to \$4.1 billion in 2020 [8]. It was expected that the growth of cloud computing will be according to the mentioned data but after the COVID-19 crises, there is a growth of 775% in cloud computing in the areas where there is a strict lockdown. The use of cloud-based technologies is expected to grow more after this COVID-19 pandemic [9]. A large amount of servers on which Indian companies are working depends on global servers. According to TDC, revenue storage will drop 5.5% and there will be a server sales decline of 3.4% due to COVID-19 [10].

2. E-Learning: E-Learning is a technique in which we learn through online platforms. It is a very flexible and efficient technique in which we can learn from anywhere even from home. E-Learning platforms like Udemy, Edx, Coursera, Byjus, etc have found a growth due to COVID-19. All the schools, colleges, universities, and offices are closed so online platforms are best to learn and enhance our knowledge. The E-learning industry of India is having a steady growth rate of 25% year-on-year and is assumed to be a \$1.96 billion industry by the year 2021. The market of E-Learning has a network of more than 1.5 million schools and having 18000 higher education institutions [11]. About 48% population in India between 15–40 age group is a good target market for online education [12]. After the COVID-19 pandemic hit, Unacademy allows the institution to run their classes free in this COVID-19 crisis, which increased the number of viewers by 3x. Byjus the online learning platform makes their courses free to be accessed which increased their growth by 60% [13]. The usage of online platforms has increased at a rapid rate due to this global pandemic.

3. Digital Marketing: Digital marketing is a field in which we perform marketing using the internet and social media platforms. The rate of growth of India's digital advertising industry is expected to be 33.5%. The overall advertisement share of digital media is about 12% and it is expected to grow up to 24% by 2020. It is expected that the Digital Marketing Industry will produce more than 20 lakh jobs in India by 2020. India's Digital Advertising Industry is at 33.5% and by 2020 its value will be expected to exceed the INR 255 Billion marks [14]. After COVID-19 the stats mentioned above are assumed to be conflicting, as most of the work of marketing is done using online resources, still, there is a downfall as marketing can be done using the internet from home, but the rate of buyers is decreasing due to COVID-19 which makes investors invest less in digital marketing as everything is shutdown [15]. The companies are canceling the meetings with clients and refusing the upcoming orders as there will be no audience interested due to complete lockdown in India.

4. Entertainment Platforms: Before the COVID-19 pandemic happened, India's video streaming industry was to grow at 22%. It was expected that India's video streaming industry is all set to grow at a CAGR of 21.82% to reach Rs. 11,977 crore by 2023. [16]. It is expected that by the end of 2022, The Indian video OTT market will be in the list of top 10 markets globally with the total market size of USD 823 million. The Video OTT market in India will touch \$823 million till 2020 [17]. After the COVID-19 Crises, various Entertainment platforms like Netflix, Amazon prime, zee5, Hotstar, Voot, and sonyLIV have found a sudden growth due to this COVID-19 pandemic. Everyone is spending time at home due to lockdown, so these platforms are coming in such great demand. On the other hand, they have to reduce their quality from HD to SD, so that it won't burden the infrastructure of the cellular network. The company head of Amazon Prime said that they have removed the option of download to 1080p, to reduce the load on cellular networks [18]. The Amazon Prime has made a few of their content free to be watched in this lock-down so that people use most of the time spending at home [19].

5. Gaming: The gaming industry is considered an economic sector involved in the development, marketing, and monetization of video games. This industry encompasses dozens of job disciplines and its component employ thousands of people [20]. In recent times the videogame industry has grown from focusses markets to mainstream. The statistics and facts of online gaming in India represent significant growth over the past couple of years. The gaming industry in India had the total market value of 62 Billion Indian Rs in 2019 and is believed to grow above 250 Billion Indian Rs by the year 2024. The Gaming Industry continues to develop new job opportunities which clearly shows the rapid evolution of this sector [21]. However, it is observed that the COVID-19 pandemic has a substantial impact on the

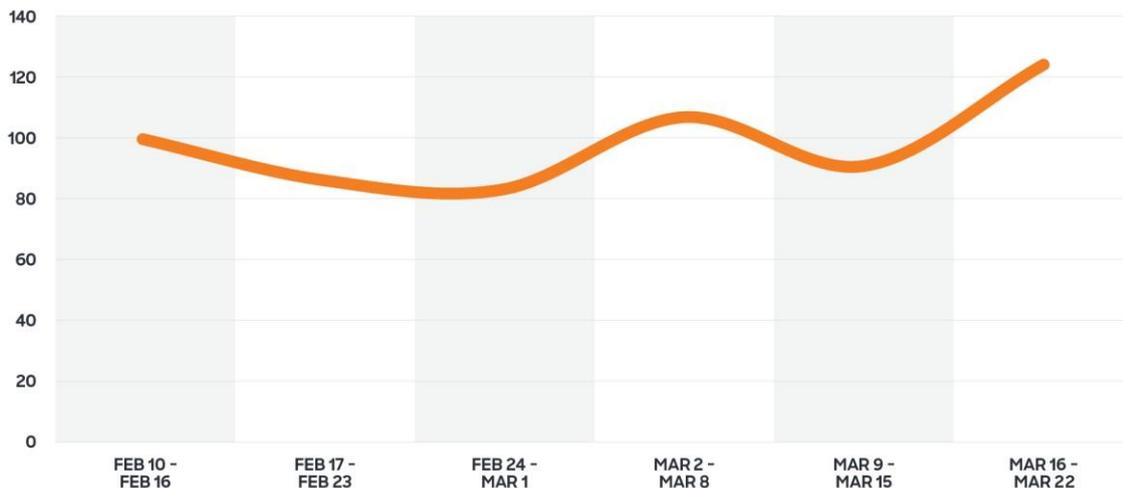


gaming industry. The industry was impacted by the pandemic in various ways. Mostly due to the high spike in online gaming and its host websites like Twitch, NvidiaGeforce, etc. It is also observed that online mobile gaming has also witnessed growth from COVID-19 shutdowns in the country. Gaming companies like Games2Win and WinZo has seen a surge in online traffic on games. The head of the revenue and distribution at Games2Win Mr. Tejas Shah said that there is an increase in daily gamers from 11-12 lakh people to 15 lakh due to COVID-19 [22]. The gaming sector of India may mark a short-term growth from COVID-19 related shutdown in the country.

6. E-Commerce: E-Commerce is known as electronic or internet commerce. It is the service that refers to buying & selling goods and services using the internet and transfer the money and information to accomplish these transactions [23]. There are many renowned e-commerce companies in India like Amazon, Flipkart, Firstcry, Indiamart, etc [24]. As of 2017 the e-commerce sector is to be of US \$ 38.5 Billion and is expected to grow to US \$ 200 Billion by 2026. The e-commerce sector performance is displaying a growing demand year by year. Over 120 million people have shopped online in 2018 and this number is expected to go up to 175 million by the end of 2020. The Industry has also shown increasing investment in the country. E-Commerce and consumer internet companies in India received more than US \$ 7 Billion in private equality and venture capital in 2018 [25]. However, It is believed that the COVID-19 pandemic will boost e-commerce in the long run. Due to complete lockdown and with all the stores closed, more customers will shop online for the very first time to fulfill the basic essential needs [26]. Although, due to complete lockdown and strictness the delivery of only essential products will be done and all the deliveries of existing Orders will be postponed. E-Commerce giants like Amazon and Flipkart posted on their websites that they will be limiting and prioritizing their orders to help reduce the spread. Also, companies like Amazon are looking to raise INR 100 Cr. For PM CARE Fund for COVID-19. The company has urged its users to donate to PM CARE Fund through its digital payment platform, Amazon Pay and the company will make an additional donation of 10% [27]. The E-Commerce Industry will be behaving a neutral performance during the pandemic but is expected to gain profits in the long run.

Online Gaming Sites: Visit Index

WEEK OF FEB 10-16 = 100



Source: Comscore Media Matrix, Custom Reporting, India, Feb 2020 - Mar 2020

7. Web Conferencing Platform: It is a service that works online through cloud servers. Online conferencing provides a platform to communicate with multiple users at the same time over a network. Web Conferencing is used to conduct various types of online gatherings like Webinars, Meetings, Webcasts, Screencast, Hangouts, etc. Web conferencing platforms like Zoom, Skype, WebEx, etc have seen a growth in its usage due to COVID-19. As the number of infections and deaths from COVID-19 rise drastically, business, offices, universities, schools, and colleges all over India are forced to shut down to rein the viruses spread. These situations are causing companies, universities, and education boards to accelerate an already growing trend of work from home. Quarantine cancellations and these work from home policies have greatly increased the demand for web conferencing platforms. These platforms will help people to try and maintain some semblance of their work as usual. Due to the situation and high increase in web

conferencing various companies like Zoom, Microsoft, Google, WebEx, etc have offered their services for free. As the requirement and demand for video conferencing platforms are skyrocketing. Microsoft has seen a 500% increase in usage. While Skype sees 70% user growth in March 2020 and also skype to skype calling minutes has increased by 220%. Zoom, Google has also reported a significant rise in the usage of its services [29]. As a result, Zoom becomes the most downloaded android app in India [30]. Web conferencing platforms will exhibit consequential increments during the lockdown period in the country.

8. Telecommunication: It is the sector that is responsible to make communication possible globally. This sector provides communication through phone, internet, airwaves, cables, and wirelessly on a network [31]. In India, the telecommunication sector is facing an unprecedented challenge during this hard situation of lockdown due to COVID-19. The telecommunication sector is dealing with the challenge of providing seamless internet services for a smoother work from home environment for India. To make this possible this sector has made some full-fledged contingency plans for providing a smoother and better network availability all over the country. The telecom companies have reduced their onsite workforce and enabled each location to operate in a distributed and virtual way [32]. As lockdown continues the network capacity and Internet usage is increasing day by day. Hence, to tackle this the government and the telecom industry has decided to reduce the load and prevent the breakdown of telecom network by reducing the quality of video platform such as youtube, amazon, Netflix, zee5, etc from High-Definition (H.D) to Standard-Definition (S.D) quality [33].

As the number of COVID-19 cases started increasing in the country the telecom operators took the responsibility to warn and educate people about coronavirus by changing the caller-tune with a warning message [34]. The telecommunication sector is expected to see high demand in network and internet usage throughout the lockdown period.

IV. CONCLUSION

COVID-19 has impacted the IT industry a lot in both a positive and negative manner. Most phases of IT sectors are assumed to show an unexpected growth with the data presented until now while many IT sectors have experienced a downfall as well. Cloud computing, E-Learning, and video streaming platforms, various gaming platforms, E-commerce websites, and web conferencing platforms experienced a huge amount of successful growth as there is a situation of lockdown due to COVID-19 pandemic. IT sector's like Digital marketing and Telecommunication experienced a slight downfall. As every coin has its two-phase, the IT sector has experienced both growth and downfall. But in the major fields of Information Technology, there is growth. According to the studies present, most of these impacts are short term and everything would get back normal after the lockdown is removed and the IT industry will again get back in its original state.

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