The Indian Mobile Sector

Growth, challenges, opportunities, & its response to Covid-19

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Introduction

The telecom industry in India is witnessing rapid growth. India is today the world's second largest telecommunication market, with 1,177.02 million total subscribers as of January 2020. The telecommunications industry can be divided into three segments—mobile, wireline, and wireless (internet) services. As of January 2020, the wireless market in India accounted for 98.25% of the total subscriber base, and rural subscribers comprised of 43.69% of the total telephone subscribers, according to a TRAI (Telecom Regulatory Authority of India) report[1].

With 'work from home' becoming the new normal in view of the Covid-19 pandemic, telecom services and the internet have become vital for everyday life. The telecom sector is being used by the government to spread awareness about the pandemic, as well as to trace and track infected people to break the chain of transmission. Despite the crucial role played by the telecom sector during the period of lockdown, the pandemic has also adversely affected telecom service providers, from mobile to internet service.

The industry lost around 2.8 million subscribers during the month of March, and 8.2 million subscribers during April 2020, according to an India Ratings and Research report[2]. The telecom operators most affected were Vodafone Idea Ltd and Bharti Airtel Ltd. However, Reliance Jio witnessed increase in its subscriber base during the same period.

India had over 500 million active internet users (they accessed Internet in the last one month) as of May 2020, according to IBEF (India Brand Equity Foundation)[3]. Despite the downturn, telecommunications experts believe the Indian telecom market will maintain steadiness, thanks to the dynamic nature of the industry.

According to global telecom industry body GSMA, India is expected to become the second largest smartphone market globally by 2025, with around one billion installed devices. The report also said India is expected to have 920 million unique mobile subscribers by 2025, which will include 88 million 5G connections.

The social distancing measures due to the pandemic have led to higher dependence on digital tools, like video conferencing and webinars, which in turn has increased the demand for telecom services. However, the telecom sector is also facing some major hurdles due to the pandemic, government regulations and customer acquisition.

[1] Telecom Regulatory Authority of India (TRAI) 2020;
https://www.trai.gov.in/sites/default/files/PR_No.29of2020.pdf
[2] Economic Times;
Telecom industry loses 82 lakh subscribers in April, pressure to continue: Report;
https://economictimes.indiatimes.com/industry/telecom/telecom-news/telecom-industry-loses-82-lakh-subscribers-in-april-pressure-to-continue-report/articleshow/77239871.cms
[3] IBEF Report https://www.ibef.org/download/Telecommunications-June-2020.pdf

Apart from inadequate internet penetration, there is a significant gap in user subscription of mobile sim cards. The estimates, according to the GSMA Report 2020, indicate that there is 78% mobile connection penetration across the country. It is a common occurrence for people to have more than one sim card. So, we can infer that in 2019, for every 100 persons, around 78 of them had sim connections. This does not mean that they all used smartphones or availed internet facility. The smartphone adoption in 2019 stands at 67%, 4G use at 56%, 3G at 11%, while there is a strikingly large figure for 2G use— at 33%, according to GSMA report 2019[4]. Even as the world is moving towards 5G, in India the usage of 4G internet has not been optimal. There is huge scope for digitalisation in our country provided these services are properly utilised.

The paper analyses the current standing of the mobile industry in India. Primarily looking at the GSMA 2020 and IBEF reports, the paper attempts to understand the growth, opportunities, challenges of the mobile sector in India, including the emergence of 5G technology. The paper also attempts to analyse the telecom industry's response to the Covid-19 pandemic.

Indian Telecom Sector: The Current Status

Due to the technology shift from voice to data, the Indian telecom industry has seen remarkable growth in the last decade. Intense competition in the telecom industry over the past three years led to rock bottom pricing in data rates, leading to financial stress in the industry.

India's internet penetration reached 530 million in 2018, at the rate of 65 million users per year in the two previous years, according to IBEF Report 2019[5]. In keeping with this growth-trajectory, growing mobile phone penetration and increase in fixed broadband usage are set to fuel the growth of the telecom industry over the next five years. In the last six years, over 600 million people became internet users, and an estimated 600 million more users are set to come online by 2025, according to IBEF Report 2020[6].

The Indian mobile market changed when Reliance's Jio made its disruptive entry in 2016. In the beginning, Jio provided mobile data free of cost, basically for its trial period. But after the trial period got over, the price of mobile data offered by Jio was much lower than that offered by other companies like Airtel and Vodafone. It led to a price war, with rivals forced to match the low rates of Jio—with the result that India had one of the cheapest mobile data pricing in the world. A whole new range of the people had access to the internet. But, the impact on the operators was damaging.

Annual revenues have declined by 26% since 2016, while annual EBIT (earnings before interest and taxes) has dropped from $2.7 billion to -$0.5 billion in the same time period (a

[4] The State of Mobile Internet Connectivity 2019; https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/07/GSMA-State-of-Mobile-Internet-Connectivity-Report-2019.pdf
[5] IBEF Report 2019; https://www.ibef.org/download/Telecommunications-August-2019.pdf
[6] IBEF Report 2020; https://www.ibef.org/industry/telecommunications.aspx

swing of over $3 billion). The Supreme Court of India on 1st September 2020 gave telecom companies 10 years for staggered payment of the huge dues owed to the government, called adjusted gross revenue (AGR), amounting to about INR 1,430 billion. A three-judge bench of the top court said telecom companies must pay 10 per cent of the dues by March 31, 2021. The Supreme Court rejected a 20-year payment timeline proposed by the central government and supported by the telecom companies, which are reeling under debt due to the intense competition[7]. The state of the telecom companies is indeed worrisome.

The huge debts of the telecom sector as a whole have put the industry in a very precarious position. The plans of expansion and induction of 5G could be at a risk because of the debt situation. As India is looking to enter the 5G era, a thriving mobile sector economy is needed which in turn will help in the delivery of 5G products and services. Investment levels have also been falling, which again indicates that the market is currently on an unsustainable path and there is a dire need for restructuring and rebalancing, which would also include immediate implementation of the National Digital Communications Policy 2018 (NDCP-18)[8].

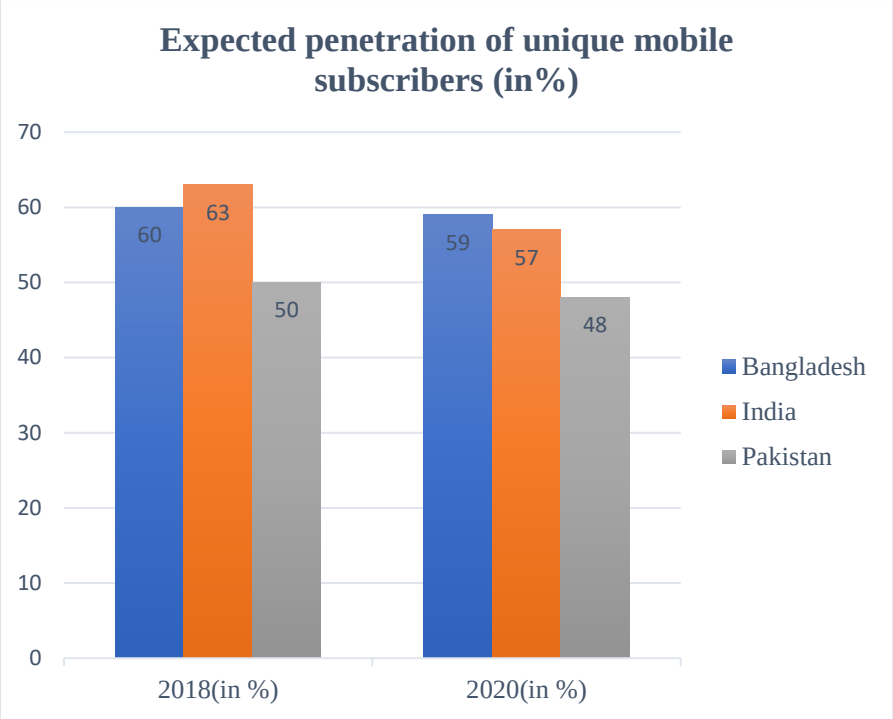
The Mobile Growth

The scale of the Covid-19 pandemic is likely to result in a reduction of expected users by 2025. This reduction would be visible across all parameters, including 4G and 5G penetration and use, and the unique mobile subscriber base as well. In 2020, the expected subscriber penetration for 2025 for the Asia-Pacific region was 70%, 3% lower than what was the expected figure in 2018, according to a GSMA Report. The below table and chart indicate this contraction of expected user base by 2025 in three countries of South Asia, namely Bangladesh, India and Pakistan.

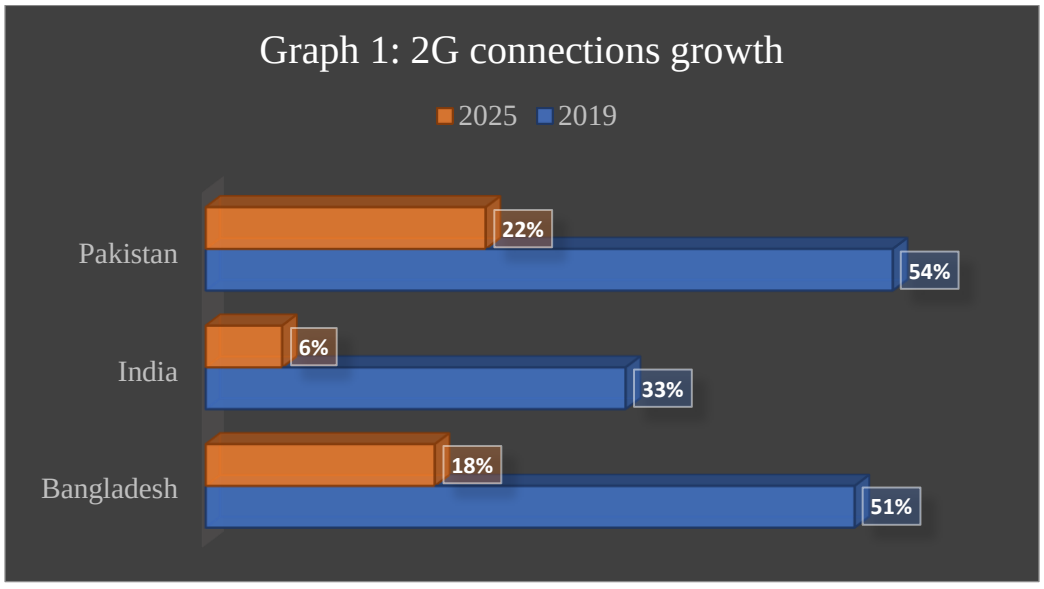
Countries	**2018(in %)**	**2020(in %)**
Bangladesh	60	59
India	63	57
Pakistan	50	48

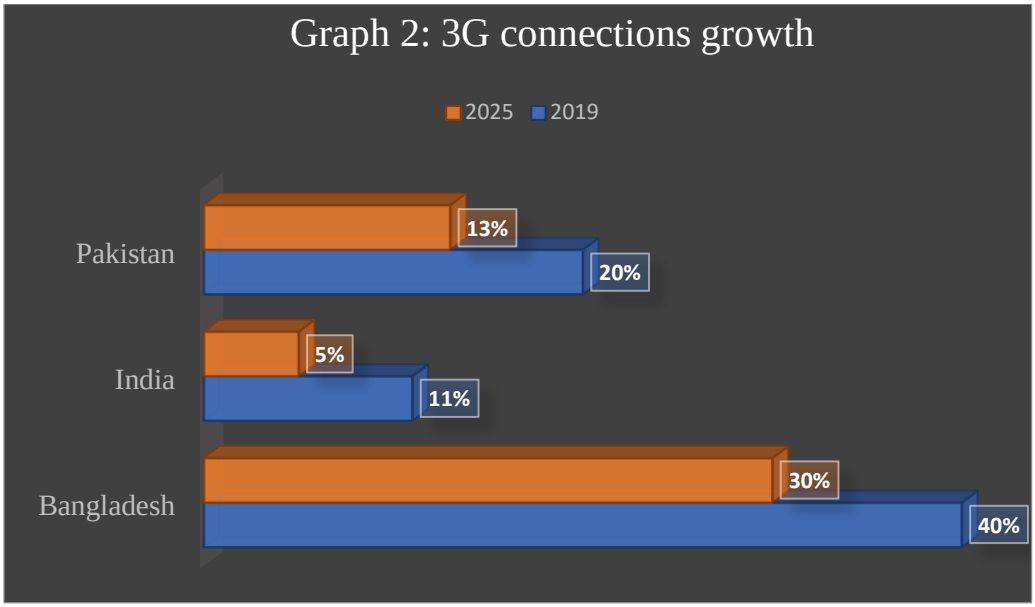
[7] Supreme Court gives telecom companies 10 years to pay Rs 1.4 lakh crore dues to government; https://timesofindia.indiatimes.com/business/india-business/supreme-court-gives-telecom-companies-10-years-to-pay-rs-1-4-lakh-crore-dues-to-government/articleshow/77866214.cms

[8] National Digital Communications Policy – 2018; https://dot.gov.in/sites/default/files/Final%20NDCP-2018_0.pdf

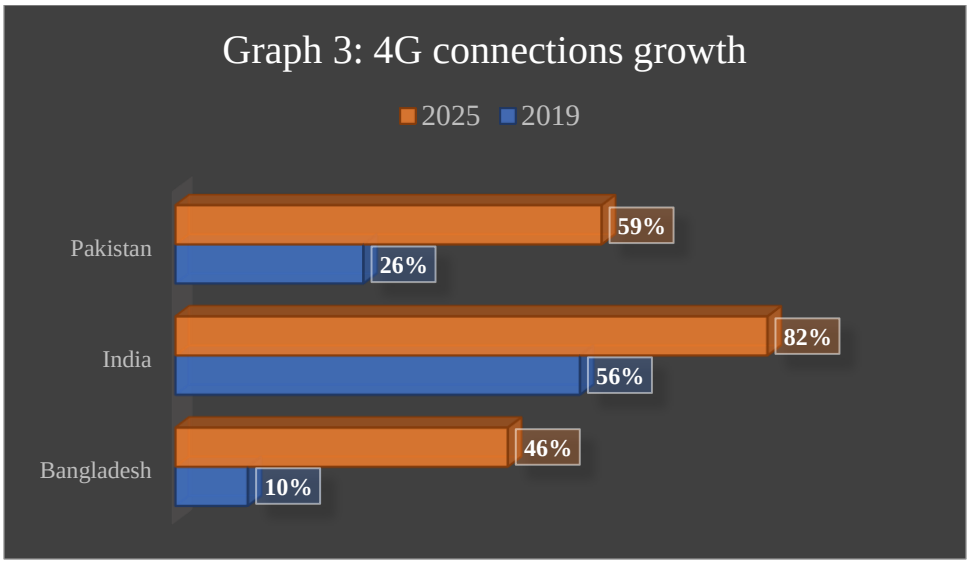


In countries like India, Pakistan and Bangladesh there is a huge user gap. A significant per cent of the population lacks mobile sim connection. In developed countries like Australia, South Korea and Japan, at least 80% of the population was connected with 4G and roughly 10-15% of the population was using 3G in 2019, while in South Asian countries the data depicted a grim status. 2G and 3G users stood at a high of 51% and 40% in Bangladesh respectively, 33% and 11% in India, 54% and 20% in Pakistan. The lives of millions would change for the better if accessibility to 4G is increased. By 2025, the use of 2G and 3G is expected to decrease substantially (Graph 1 & 2).





It can be inferred from the above graphs that there is huge scope in expanding 4G network in India (and South Asia). 5G, which promises exponentially faster internet speed, would in the long-term help bridge the digital gap, while 4G can be viewed as a short-term measure. India had planned to introduce 5G in 2020 but it has been postponed due to the pandemic-induced crises (Graph 3).



One of the reasons for the low level of user penetration in rural areas, especially of 4G services, is the financial aspect. As we move from 2G to 3G, and eventually from 3G to 4G, the need for changing the handset arises, which becomes a costly affair. The demand for cheap handsets is being fulfilled by Chinese mobiles. Another issue that prevails in rural areas is the lack of availability of spectrum and mobile towers to offer these services. Telecom infrastructure has not penetrated deeply into semi-rural and rural areas due to the high initial fixed cost that service providers have to incur.

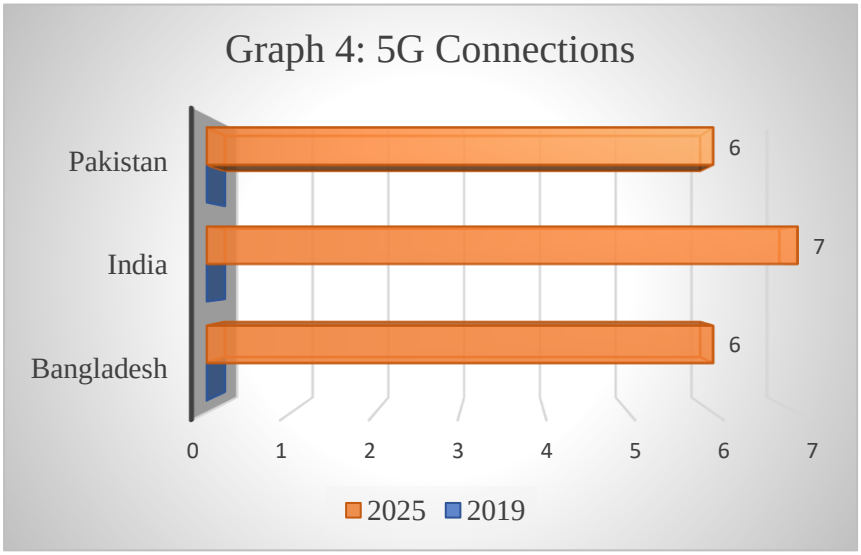
The previous plans for introducing 5G in the Asia-Pacific region have been slightly postponed due to Covid-19. The pandemic has led to the global economy entering into a recession, with consumption and output reduced. This is impacting different countries in multiple ways and will impact the rollout of 5G services as well. The revised forecast by GSMA says that the total number of 5G connections will be almost 20% lower in 2020 in the Asia-Pacific than previously expected. 5G rollout is growing, but not everywhere.

In Asia-Pacific countries like Australia, Japan and Korea, 5G rollout is gathering pace. Nine markets have launched commercial mobile 5G services while 12 more have officially announced plans to do so[9].

Table 1: The estimated technology mix in 2025 of 5G

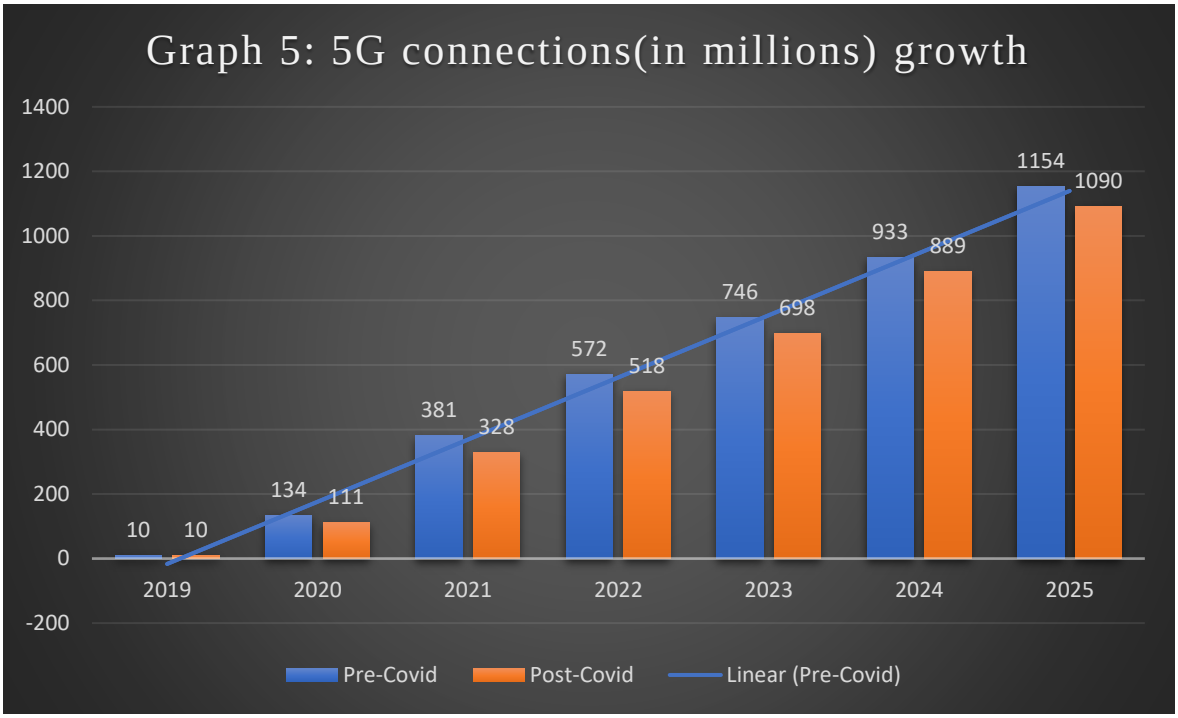
Country	5G adoption
Australia	54%
Japan	47%
South Korea	67%

With the adoption of 5G, the Asia-Pacific is estimated to become one of the most advanced markets of the technology in the whole world. Countries like Australia, South Korea and Japan are aiming to become 5G global leaders. From the table, we can infer that at least roughly half their technology would be 5G based. The data for South Asian countries shows a much lower figure for 5G adoption. Estimates for 2025 for Bangladesh, India and Pakistan respectively stand at 6%, 7% and 6% (Graph 4).



To support and promote the shift of technology into 5G, which is expected to increase consumer engagement, mobile operators in the Asia-Pacific are to invest over $400 billion in their networks between 2020 and 2025, of which $331 billion will be spent on 5G deployments.[10]

[9] The Mobile Economy: Asia Pacific 2020 (by GSMA)
[10] The Mobile Economy: Asia Pacific 2020 (by GSMA)



The estimates indicate that roughly 700 million people across the Asia-Pacific will start using mobile internet by 2025, and two-thirds of this would be from India and China. By 2025, around 40% of the global connections would be from the Asia-Pacific, which would be powered by the three largest smartphone markets--India, Indonesia and China. The figures indicate that this region has enormous potential to grow, and bridging the digital gap would vastly improve the scenario.

These estimates were higher during the pre-Covid-19 time. The liquidity crunch arising from the current financial crisis due to the pandemic has led to lowering of the number of expected 5G connections. The revised forecast shows 18% lower 5G connections in the Asia-Pacific in 2020 than previously assumed (graph 5).

Telecom industry's response to COVID

The world geared up to face the challenges posed by the pandemic. YouTube decided to keep the quality of its videos at standard definition, but with the provision that the user can change the quality if they want. This was done to save bandwidth. Video providers including Netflix, Amazon Prime, and Disney+ lowered their streaming quality to avoid internet congestion. In mid-April 2020, global internet traffic increased by about 30% in comparison to the previous month. Several mechanisms were implemented across the world to face the challenges posed by the lockdown. Emergency spectrum licenses were provided to mobile network operators (MNOs) to access any portions of unallocated spectrum, depending on national requirements. Short term/trial licences were issued to MNOs where new technologies could enable operators to assist in delivering connectivity and for deploying services in ad-hoc basis. Deadlines for any ongoing transitions or renewals for licences providing high-speed broadband were

extended. AT&T Communications joined a global initiative called the Open COVID Pledge to make their patents available free of charge in order to aid in the fight against the virus.

Asia Pacific

To motivate people to stay in their homes, PCCW Media, a company headquartered in Hong Kong, offered its Now E service free to all Hong Kong viewers from April 9 to June 8, 2020. It offered 9,000 hours of free content, including news, movies, TV series, variety shows and sports. In New Zealand, Vodafone activated additional 4G cell sites in rural areas from 26 March to enable more customers to stay connected during the lockdown11. In order to support the education needs of students, Chorus, a telecommunications infrastructure provider in New Zealand, offered to provide internet service providers with a free wholesale broadband service to support up to 50,000 homes that were without connectivity. A similar kind of service was offered by Christchurch fibre broadband network provider, Enable. To help governments during Covid-19, Kacific Broadband Satellites Group, a next-generation broadband satellite operator delivering broadband to the Pacific and Southeast Asia, has offered over 1,000 small satellite dishes, at no cost, to healthcare departments throughout the Asia-Pacific, so they can rapidly connect rural and remote medical clinics to high-speed internet12. The countries where Kacific extended help include American Samoa, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Micronesia, New Zealand, Niue, Northern Mariana, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, Bangladesh, Bhutan, Brunei, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Timor-Leste and Southern Thailand.

In South Asian countries too, telcos extended similar help during the lockdown. In mid-March, the government-owned Nepal Telecom announced that the deadline for payment of bills for its internet and landline customers would be extended. It also decided to waive the penalty for late payment of bills. Furthermore, the Government of Nepal commanded the telecoms and Internet service providers (ISPs) to reduce the cost of internet by 25% during the lockdown period. However, ISPs demanded subsidy for the same and made it clear that such a discount would made available only if they get relief from the government. Nepal Telecom also launched special packs for prepaid users. In Pakistan, SMSs were sent to all mobile subscribers informing them about the precautionary measures against Covid-19. The Cellular Mobile Operators (CMOs) also replaced the standard ring back tone (heard by caller when a call is being made) with recorded messages about Covid-19 and its preventive measures. All CMOs also offered free calls to emergency numbers. This apart, cellular companies offered new packages at lower rates to their subscribers.

Across the world, telecommunication emerged as the lifeline during the lockdown—to keep banks, utilities, e-commerce and other key public services running. Telecom companies looked

[11] https://www.commsupdate.com/articles/2020/03/27/vodafone-nz-boosts-4g-connectivity-for-rural-customers-during-covid-19-lockdown/
[12] https://kacific.com/news/satellite-service-to-help-remote-medical-clinics-combat-covid-19-across-asia-pacific/

for new and innovative solutions to tackle the sudden increase in demand and focused on easing the inequalities while following social distancing protocols. Telecoms launched new packs for users. In some areas, the telecoms made temporary stay arrangements at their offices so that staff could provide uninterrupted services and monitor the demand and supply chain.

Indian telecom industry's response to the pandemic

At the end of March 2020, the Indian telecom industry braced to face the upcoming challenges due to the lockdown and the telecom players undertook different strategies to help subscribers. Since people were confined to their home's internet consumption was set to rise rapidly.

In the wake of the nation-wide strict lockdown, the telecom industry geared up to ensure uninterrupted mobile and broadband services. The industry deployed senior technical staff and smart hands at their network management war rooms to closely monitor the critical operations. The operators also made arrangements for food and temporary stay at their data centres and for dropping technical staff at the sites to ensure uninterrupted mobile and broadband services. The facility of checking Covid-19 symptoms were added on their applications. In order to cater to work from home, telecos increased the data limit on existing plans for prepaid users. Some telecom majors extended the validity of packs till mid-April and added a top up of Rs10 to those accounts that were going to expire after 22 March 2020.

Airtel

- In the early days of lockdown, Bharti Airtel asked all the service providers to activate intra-circle roaming (ICR), to ensure that operators could provide seamless connectivity while India went under lockdown.
- It added the facility of free digital self-assessment test for Covid-19 symptoms on the Airtel Thanks app.
- It provided access to thousands of titles on its e-books platform--Juggernaut Books--previously known as Airtel Books.
- It also offered over 10,000 movies and shows plus LIVE TV for customers.
- Airtel extended the pre-paid pack validity for over 80 million customers -- all under-privileged households -- till April 17, 2020, and credited an additional Rs 10 of talk time in the pre-paid accounts. The measures were targeted to benefit migrant workers and daily wage earners who were impacted due to the lockdown.

JIO

- Jio also came up with several measures for administering seamless connectivity to its subscribers during the lockdown. Through its basic JioFiber broadband offer, the company offered to provide 10Mbit/s connectivity without any service charges. In a

press release at the end of March, Jio said it would provide double the data across all plans for JioFiber subscribers to help them work from home.[13]

- Jio doubled the data for all JioFiber users.
- JioCinema on its Facebook page put up a list of movies in different categories to keep people entertained and encourage them to stay indoors.
- It added the facility of checking for Covid-19 symptoms on its app.

Vodafone/Idea

- Vodafone/Idea also launched special packs for its prepaid users
- Vodafone made a five-point plan which included maintaining the quality of service of networks, providing network capacity and services for critical government functions, improving dissemination of information to the public, facilitating working from home and helping the small and micro businesses within their Supply Chain and improving governments' insights into people's movements in affected areas.

BSNL

- In the early days of the lockdown, BSNL extended the validity of the plan till April 20 so that subscribers could continue to get incoming calls. The offer was applicable at no additional cost and was valid for all subscribers whose validity expired after March 22. BSNL also offered Rs 10 free talk time to all prepaid user whose mobile balance reached zero.
  - A new offer called Bonanza was rolled out. Under this, new and existing users were able to avail up to 4 months of extended validity by choosing a broadband single plan for a longer period.

Challenges

India is lagging behind in various parameters of the telecom sector, which is not only hampering growth but depriving millions of the basic necessity that the internet has become. It includes and is not limited to user penetration, 4G and 3G use, broadband penetration, the rollout of 5G services, etc.

The country's digital sector faces many problems. First, for fixed-line broadband services to households in India, there is a license fee calculated at the rate of 8% of the adjusted gross revenue, which amounts to roughly Rs 8.8 billion a year. India is looking to slash this license fee to Rs 1 a year, which would make the broadband connections to households cheaper and help in increasing its penetration and subscriptions. But it would lead to the government losing an estimated Rs 59.27 billion, assuming a 10% growth in revenues over five years. However, the gains from the increase in digital access, including job creation, and the benefits to the health and education sector among others, would far outweigh the losses. A robust digital economy would lead to higher growth output and job creation as well.

[13] https://www.lightreading.com/optical-ip/fttx/indian-telcos-gear-up-to-ensure-connectivity-in-the-time-of-covid-19/d/d-id/758449

Secondly, the minimum data speed provided by internet service providers is much lower than in other countries like South Korea, Japan etc. India's average 4G download speed of 11.46 Mbps is far below the global average. As of December 2019, India was ranked last among the BRICS (Brazil, Russia, India, China and South Africa) nations, with China having the fastest speed. India ranked 128 among 140 countries in terms of average mobile Internet download speed.[14]

Another hindrance in the path of achieving the dream of Digital India is the high investments required for installation and set-up of the physical infra to support internet connectivity, like fibre cables, towers etc. The high infra costs in addition to the license fees and other taxations, is making expansion of the internet system a costly affair. The telecom sector is already under huge debt, and the current recession has led to a severe liquidity crunch.

Another major problem affecting the telecom sector is the inadequate availability of spectrum. The issue is taking time to be resolved as ISRO (Indian Space Research Organisation) is demanding a major reservation in the spectrum allocation. 5G rollout on paper sounds great, but impediments are seen in its implementation. For the 5G network to work efficiently the spectrum frequencies in low, mid and millimetre bands form an ideal ecosystem. The Department of Telecommunications (DoT) has identified 35 MHz of spectrum in the 700MHz frequency band, and 300 MHz of spectrum in the midrange band of 3.3GHz to 3.6GHz for delivery of 5 G services. However, of the 35 MHz of spectrum in the low-frequency (sub-1GHz) band, the Indian Railways has demanded 10 MHz, leaving only 25 MHz for telecom operators. Even the 300 MHz of spectrum from the midrange band is not fully available for telcos. In this band, the space and defence departments have staked claim to 25 MHz and 100 MHz units, respectively, leaving only 175 MHz of spectrum for telecom operators.[15]

Though the spectrum in the millimetre wave frequency is amply available, DoT has to contend with the defence, railways and space departments putting up competing claims, making it difficult to auction this frequency. This apart, the prohibitively high pricing of the bandwidths and spectrum by the Telecom Regulatory Authority of India (TRAI) has acted as a deterrent for the telcos. The industry is reportedly uninterested in bidding for 5G because of the inadequate availability of spectrum in the right frequency bands. The industry has also noted that the 5G spectrum price recommended by TRAI is much higher than the global average.

[14] https://www.thehindu.com/data/data-where-indias-mobile-internet-speed-ranks-globally-which-operator-offers-the-fastest-download-speeds-and-more/article30800987.ece

[15] https://www.business-standard.com/article/technology/year-in-review-know-about-5g-and-why-it-remains-a-distant-dream-for-india-119121800845_1.html

The Way Forward

This pandemic isn't anything like the previous major health crises that the world or even India has faced. It is becoming increasingly clear why and how the internet has a huge impact on our economy, and if strategies and plans are undertaken to increase the internet penetration and upgrading of 2G users to 3G, then to 4G and then on to 5G, it can monumentally change everything. Since the past over 6 months, the internet has become a lifesaver as people move online for purchases and networking, and work is done virtually and through videoconferencing and zoom calls.

It has been established that deeper penetration of digital services leads to increase in job creation. More jobs would in turn be created in the semi-rural and rural areas, and the migration from villages to cities would slow down. The impact of the rise in internet services can be felt in every sector.

The telecom sector is under a huge debt which makes investments harder. Furthermore, the telecom sector is governed by several licenses and taxes, which in turn increases their costs. In September, the Supreme Court ordered the telecom companies to pay 10% of their AGR dues by 31st March 2021. New policies and changes are the need of the hour to reform the telecom sector, especially as it is going to become the backbone of our economy in due time.

The rollout of 5G services which was expected to happen in 2020 has been postponed due to the current pandemic. In addition, the battle over spectrum in which ISRO is now a major factor is delaying matters even more. Telcos will have to install more towers to beam the limited spectrum allowed to them, which in turn will increase the fixed costs. Optic fibre is also essential for large-scale deployment of 5G rollout and India is behind the global average in this aspect. Enough incentives are not being provided to enthuse companies to rollout 5G services in the country.