THE WIRELESS CELLULAR MOBILE COMMUNICATIONS INDUSTRY IN INDIA : ACCELERATING TOWARDS SELF -RELIANT DURING COVID-19.

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ABSTRACT

Telecommunications is synonymous to Mobile Communications in India. While economies across the globe are racing towards Digital which is the 'it' word for everything, the inevitable fact is that it is 'Telecommunications' which is the backbone of Digitalization as it is largely dependent upon data connectivity and robust rollouts of network. Under normal situation, Telecommunications sector contributes almost six percent to national GDP but during the pandemic this has escalated five to six times which shows the growing significance of wireless mobile communications in India. The research paper aims to analyse the growing opportunities in the wireless mobile industry during Covid-19 that are a result of data- security initiatives of the country which in turn support the Make in India and Digital India programmes. The paper further discusses the issues and challenges that emerged due to the pandemic which delayed the adoption of 5G technology in India. With AGR dues of approximately 1.43 lakhs, lowest mobile tariff in the world and delayed network roll-outs India seems to be moving towards duopoly of private cellular operators as Vodafone Idea Limited is at the verge of collapse due to lack of funds during the pandemic. The present situation has made it difficult for India to achieve the objectives of the National Digital Communications Policy 2018 that stresses upon self- sustained and self- reliant Wireless Cellular Mobile Communications. However, there is always a silver lining at the end of a dark cloud and therefore, the Make in India and Atmanirbhar Bharat Programmes are being strongly supported by the Government through the concept of 'Trusted Sources in Telecommunications Digitalized Network' under which the Chinese companies are restricted and Indian companies are being promoted to invest in equipment manufacturing for the industry. The researchers have also given suggestions that can accelerate wireless cellular mobile communications industry towards self- reliance and self- sustainability through efficient policy reforms.

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Keywords: Digital India, 5G, Indian Economy, Make in India, National Digital Communication Policy- 2018, Spectrum Management, Adjusted Gross Revenue, Trusted Sources in Telecommunications Digitalized Network, Right of Way Rules 2016, Data Security.

INTRODUCTION

"It is not the strongest of the species that survives, nor the most intelligent. It is the one that is the most adaptable to change."

- *(Charles Darwin)*

As the world sails through the Covid-19 pandemic, it has become evidently clear that adaptability is the only way to survive. The Indian Wireless Cellular Mobile Industry has braved many storms in the past twenty-five years of liberalization but the current pandemic has come as a global challenge for the industry. As India slipped into quarantine and multiple lockdowns with limited movements, the versatile and omnipresent cellular mobile networks came to the rescue of the people by providing digital connectivity while they were physically restricted in their homes. When even the most promising sectors like Aviation, Automotive and Railways came to a standstill, the wireless mobile industry came at the forefront as a 'one-man army' and became a pillar of strength for the dwindling Indian economy.

The way Demonetisation gave impetus to e-wallet applications like Paytm, Google Pay and PhonePe etc in 2016, Covid-19 has paved the way for more professional virtual connectivity through applications like Teams and Zoom which uprooted the need for expensive and complex Audio- Visual Conferencing Systems making work from home and school from home, e- healthcare and e-banking possible. The pandemic has raised the demand for data which has urged the need for faster digitalization process in India in support of the National Digital Communications Policy- 2018.

With the lowest data price in the world at 0.11 USD per GB[3] and an average 10.3 GB[4] of data usage per month per data subscriber, the Wireless Cellular Mobile Industry is ready to

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[3] THE CELLULAR OPERATORS ASSOCIATION OF INDIA, COAI WHITE PAPER ON COMMUNICATION AND DIGITAL TECHNOLOGY 2 (Jan. 15,2020), https://cdn.coai.com/sites/default/files/2020-

take a giant leap towards 5G technology and Internet of Things (IoT) for which the trials have already begun. 5G is going to be the backbone of 'Digital India', 'Make in India' and 'Atmanirbhar Bharat' Programmes and has a strong potential to accelerate the country's digital economy.

This research paper has been divided into three parts, wherein the researchers have explored the opportunities in the Wireless Cellular Mobile Industry in India in its journey towards self- reliance and self- sustainability during the pandemic. In the second part the researchers have discussed various issues and challenges that have emerged in the industry during Covid-19 and the third part of the paper discusses the future roadmap to make the industry self- reliant and robust through policy reforms. The rationale of the study is to find the gaps in the National Digital Communications Policy- 2018 with regard to wireless cellular mobile communication industry in India and to suggest reforms in the policy that can further escalate the industry towards self- reliance.

1. OPPORTUNITIES IN THE WIRELESS MOBILE COMMUNICATION INDUSTRY DURING COVID-19

The Covid- 19 pandemic that forced the entire human race behind closed doors and brought economic activity to a halt proved to be a blessing in disguise for the wireless mobile communications industry in India. The lockdown has taught Indians to adopt digital medium for their day-to-day activities including banking, healthcare, education, entertainment, shopping and working from home. Such practices are likely to continue post pandemic too as Indians have become adept to online business transactions.

Some of the positive outcomes of the pandemic on the mobile industry are as follows:

1.1 - Data traffic has increased almost 15% during the pandemic and many subscribers have been upgrading their mobile plans to improve the data usage capacity of their network. This is likely to increase the ARPU[5] for all cellular network operators and shall create opportunities for the development of digital applications related to Artificial Intelligence, Internet of Things and Smart Cities. Such outcomes will generate more revenue for the digital service providers who in turn will be able to

02/COAI%20White%20Paper%20on%20Communication%20and%20Digital%20Technology%20-%2015.01.2020.pdf (last visited Jul. 2, 2021).

[4] *Ibid.*

[5] Average Revenue Per User.

invest more on network infrastructure. The pandemic has raised the dependency of people on their cellular networks to attend schools, colleges and offices virtually which has escalated the average traffic per smartphone user from 13GB per month in 2019 to 14.6GB per month in 2020[6]. India stands second in the world in terms of average traffic per smartphone and is estimated to jump to around 40GB per month by 2026[7]. Total mobile data traffic in India has grown from 6.9EB per month to 9.5EB per month in 2020 and is projected to increase by more than 4 times to reach 41EB per month in 2026.[8]

1.2 More cell-sites to create skilled- manpower demands- To enable faster roll- out of 5G, the cellular tower companies will be needing more skilled manpower to install new network access points and cell- sites. Till 4G, each cellular tower could cover several kilometres but for optimum adoption of 5G in higher bands in various used cases other than mobile communications, greater number of small cell- sites need to be installed. This will generate employment opportunities for manpower that is skilled in 5G equipment specifications, network infrastructure designing, fibre optic, antenna systems, backhaul installation etc.[9]

1.3 Faster adoption of Smartphone in the coming years- The pandemic has further increased the necessity for smartphones in India. At present 4G penetration in India stands at 61 percent of mobile subscriptions which will go up to 66 percent by 2026 while 5G will cover around 26 percent of mobile subscriptions in India by then[10]. The number of smartphone subscriptions is also expected to grow at a CAGR of 7 percent, reaching over 1.2 billion by 2026[11]. Smartphone subscriptions cover 72 percent of total mobile subscriptions in 2020 and are estimated to scale up to 98 percent in 2026, due to faster smartphone penetration thereby bridging the digital divide between urban and rural parts of India.

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[6] ERICSSON, ERICSSON MOBILITY REPORT 13 (Jun. 2021) https://www.ericsson.com/en/mobility-report/reports/june-2021 (last visited Jul. 2, 2021).
[7] *Ibid.*
[8] *Ibid.*
[9] Maurer And Roy, *The 5G Workforce Needs a Big Boost*, SHRM, Jan. 28, 2020, https://www.shrm.org/resource-sandtools/hr-topics/talent-acquisition/pages/5g-workforce-labor-shortage.aspx. (last visited July 2, 2021).
[10] *Supra* Note 4 at 8.
[11] *Ibid.*

1.4 Rising demand for FWA[12] Connections- The pandemic has increased the significance of digitalization. However, since India is still lagging behind in broadband connectivity on fibre, FWA serves as a simpler and cost- effective alternative for broadband access in homes and business premises. FWA promises equally faster data speeds to households and small and medium-scale businesses and has the potential to provide broadband access to rural parts of India in the absence of Fiberization. 5G combined with FWA will rapidly accelerate the speed of digitalization in India.

1.5 A Boost to 'Make in India' and 'Atmanirbhar Bharat' Programmes: A Silver Lining at the End of a Dark Cloud- The adoption of 5G technology is also likely to increase security issues globally. Realizing the growing security risks, the government introduced the concept of 'Trusted Sources in Telecom Digitalized Network' in December 2020 to regulate the equipment procurement by service providers. Under the scheme, the Government has taken a strong action to ensure data security by completely restricting Chinese OEM's, Huawei and ZTE, from exporting telecom equipment to India. The Indian government has launched the *'trusted telecom'* portal[13] as a part of National Security Directive on the telecommunications sector, to give clearance to telecom gear before it is installed by communications service providers (CSPs)[14]. The new rules direct the digital service providers to use equipment from 'trusted' sources only. The digital service providers need to access the portal to find a list of trusted vendors from whom they can purchase particular network equipment. The initiative is likely to give an impetus to make in India and Atmanirbhar Bharat Programmes as more and more Indian companies like Sterlite Technologies Limited (STL), Akshata- a Tata Consultancy Services company, Tech Mahindra, HFCL and VVDN Technologies among others are contributing in the Make in India programme for 5G ecosystem.

Apart from this the Department of Telecommunications has also issued the guidelines for Performance-Linked Incentive (*PLI)* scheme in June 2021 for telecom and network manufacturing, inviting domestic players to participate within a one-month

[12] FWA stands for Fixed Wireless Access which is a simpler alternative to connect two fixed wired connections through radio waves. It is used in homes and offices and does not include portable routers and dongles.

[13] *Cyber Wing, National Security Council Secretariat, Government of India*, TRUSTED TELECOM PORTAL, www.trustedtelecom.gov.in (last visited July 2, 2021).

[14] Muntazir Abbas, *The Indian Government Launches Trusted Telecom Portal*, ETTELECOM, June 16, 2021, https://telecom.economictimes.indiatimes.com/news/government-launched-trusted-telecom-portal/83538801 last visited July 2, 2021.

window.[15] Under the scheme, both Indian as well as foreign telecom equipment and networking manufacturing companies are being offered a four to six per cent incentive for five years totalling over Rs 12,195 crore.[16]

2. ROADBLOCKS IN THE PATH OF WIRELESS CELLULAR MOBILE COMMUNICATIONS INDUSTRY TOWARDS SELF- RELIANCE: AN IMPACT OF PANDEMIC.

Covid-19 hit India when the cellular operators were already struggling to gulp down the unfavourable judgment by the Hon'ble Supreme Court on the Adjusted Gross Revenue that further added to their huge debt burden which is an outcome of high spectrum prices. To come out of the debt burden the operators planned to raise mobile tariffs with an objective to generate more revenue so that they could prepare themselves for the upcoming 5G spectrum auction but the pandemic ruined their expansion plans. Indian mobile industry which was predominantly dependant upon China for telecom equipment, was forced to halt the roll-outs of network and other development plans as the pandemic restricted the cash flows of the companies due to global trade restrictions. The government soon realised that the only way to come out of this gloomy situation is to make India self-reliant and self- sufficient in telecom equipment and networking manufacturing. The government issued a set of schemes like '*PLI*' and '*Trusted Sources*', as discussed in the preceding para of this paper, towards this direction but the road ahead has been bumpy and challenging. The various issues and challenges that have emerged in the industry due to the pandemic have been discussed as under:

2.1 Delayed Roll-out of Network- In May 2020, the three cellular operators had to ask for an extension of six to nine months from the Department of Telecommunications to meet their roll-out targets as the pandemic had affected the import of telecom equipment in India. Furthermore, the cellular tower companies had a hard time in acquiring tower sites and getting approvals from municipal bodies and state authorities which also hampered the expansion of network infrastructure that is extremely crucial for efficient adoption of 5G technology.

[15] *Department of Telecommunications*, PLI SCHEME GUIDELINES FOR TELECOM AND NETWORKING PRODUCTS, https://dot.gov.in/whatsnew/guidelines-production-linked-incentive-pli-scheme-promoting-telecom-networking-products (last visited July 2, 2021).
[16] *Id.* at 17.

2.2 Rise in ARPU Halted Due to the Pandemic- The cellular operators had plans to rise the Average Revenue Per User from the current 102 INR[17] to 200- 300 INR to earn a reasonable return on capital but the pandemic delayed such plans. Rise in ARPU is imperative for the operators to repay the surmounting debts so that they may invest on network expansion for 5G technology. It is an irony that with 14.6 GB of data traffic per smartphone per month[18], India has the lowest ARPU in the world at Rs 102[19].

2.3 The Growing Need for Optimum Utilization of Spectrum- Spectrum being a natural resource is like a river which is ever- flowing but if misused or wasted, it can become scarce. The pandemic has further reiterated the significance of efficient spectrum management so that all the market players can co-exist in the industry and there can be seamless leapfrog from one technology to another. Currently, the cost of spectrum is highest in the world which is the biggest reason behind spectrum remaining unsold in all the auctions and delay in 5G auctions as the operators are already financially drained to further invest in 5G spectrum. Spectrum pricing needs to be reasonable to provide adequate spectrum for advanced technologies otherwise 5G cannot be used to its optimum capacity in India.

2.4 Delay in 5G Auction due to the AGR Judgment- On October 24, 2019 the Hon'ble Supreme Court of India gave its verdict on the licensing agreement between cellular operators and the Department of Telecommunications (DoT)[20]. The Court included various revenue heads within the net of gross revenue, thereby imposing a burden of around Rs. 92,000 crores on the telecom companies. The cumulative effect of this judgment including other multiple duties and levies has put the industry in a very vulnerable situation due to which all the future roll-out plans and advanced technological advancements have been dented. The impact of this judgment is so high that Vodafone Idea Limited is struggling to survive in the industry. In the absence of government support, the industry could move towards duopoly and for a country like

[17] TELECOM REGULATORY AUTHORITY OF INDIA, THE INDIAN TELECOM SERVICES PERFORMANCE INDICATORS OCTOBER TO DECEMBER 2020 50 (Apr. 27, 2021), PIR Oct to Dec 2020- 27.4.2021.pdf (last visited July 3, 2021).
[18] *Supra* Note 4.
[19] Telecom Regulatory Authority of India, *Supra* Note 15.
[20] Union of India v Association of Unified Telecom Service Providers of India, 2019 SCC Online SC 1393, https://indiankanoon.org/doc/18700540/ (last visited July 3, 2021).

India it would become difficult to fulfil the objectives of the National Digital Communications Policy- 2018 with just two private operators.

2.5 Inadequate Fiberization- '*Broadband for All*' has been an objective of the National Telecom Policy of 2012 as well as of the National Digital Communications Policy-2018 (NDCP-2018) yet only thirty percent of all the connected networks are on fibre while for efficient adoption of 5G technology it is absolutely necessary to connect the remaining 70 percent of network on fibre. The NDCP- 2018 also lays down the objective to fiberize sixty percent of telecom towers by 2022. One of the reasons for slow penetration of fibre and mobile technologies in India is the absence of uniform application of Right of Way Rules, 2016 and lack of cellular tower infrastructure for wireless cellular mobile services.

3. MAKING WIRELESS CELLULAR MOBILE INDUSTRY SELF-SUFFICIENT: THE FUTURE ROADMAP

By analysing the above issues and challenges, it is clear that the industry is in an urgent need of Government support considering the fact that more than thirty percent of the revenue goes back to the government through multiple duties, taxes and fees. Through regulatory reforms, the industry can spearhead towards 5G and IoT and can become a major contributor to the economy of the country in coming years. The following reforms can help to create a robust infrastructure for future technologies in India:

3.1 A Judicious Spectrum Policy- The successful deployment of any advanced technology rests upon an efficient spectrum policy which includes futuristic spectrum band planning, effective spectrum assignment through auctions and reasonable spectrum pricing. As discussed above, the reserve price for spectrum bands is exorbitantly high in India. The Telecom Regulatory Authority of India should adopt a judicious spectrum pricing method that considers existing market scenario rather than calculating it according to the base price of the previous auction. The Spectrum Usage Charges (SUC) and License Fee should be reduced to three percent for all digital service providers. Secondly, the License Fees, SUC and Payment of Spectrum acquired in auctions should be exempted from GST. Thirdly, the License Fees and

SUC should be exempted from the service tax in compliance with the Hon'ble Supreme Court's AGR Order[21].

3.2 Need for a Long-Term Plan for Allocation of Spectrum Bands- The National Frequency Allocation Plan, drafted by the Wireless Planning and Coordination Wing, must be in harmony with the standards set by the International Telecommunications Union. The National Digital Communications Policy-2018 should be revised to include more spectrum bands for 5G to ensure seamless evolution of mobile technologies. For instance, the operators are not sure whether the 5G spectrum bands given to them for trials will be included in the upcoming 5G Auction or not. Such uncertainties cause unnecessary delay in establishing the required infrastructure for this technology.

3.3 Review of Universal Services Obligation Fund (USOF)- Prior to 2004, the Universal Service Obligation Fund (USOF) was used only for basic telecom services but after the Indian Telegraph Amendment in 2004 and subsequent amendments in 2006[22] and 2008, the Fund supports the following services[23]-

3.3.1 Establishment of infrastructure for wireless mobile services in rural and remote areas.

3.3.2 Enable broadband connectivity in rural areas in a phased manner.

3.3.3 Set-up telecom facilities in villages.

The USOF levy is also calls for review. Despite including mobile services within its ambit, 4G penetration is just sixty-one percent while fibre penetration is only thirty percent in India. The current mobile ecosystem does not deserve the five percent USOF levy as the fund has failed to bridge the digital divide despite having Broadband Policy since 2004. A regular audit of the Fund will ensure efficient utilisation of the funds to achieve its objective.

3.4 The Cost of Spectrum to be Revised- The Telecom Regulatory Authority of India has recommended a base price of Rs.492 Crore (about US$66 million) per MHz of

[21] *Ibid.*
[22] This amendment widened the scope of USOF to cover wireless mobile services and broadband connectivity.
[23] GSMA, *The Universal Service Fund Study*, 146 (Apr. 2013), USOF Study-GSMA 2013.pdf. (last visited July 3, 2021).

spectrum for 5G auctions[24]. This means that a band of 100 MHz required for 5G technology would cost US$ 6.6 billion in just licensing the frequency[25]. The high reserve price has been opposed by the cellular operators as they are already under huge debts and facing cash crunch due to the impact of the pandemic. The reserve price should be decided cautiously keeping the various market factors in consideration to avoid unnecessary delay in spectrum auctions.

3.5 The Ease of Doing Business in the Industry to be Improved- In order to create a strong 5G ecosystem in the country, it is very important to invest in streamlining Cellular Infrastructure related to fibre penetration and Right of Way clearances, for both underground and over- ground infrastructure, as they the crucial elements for next generation technologies. There is an immediate need for seamless adoption and implementation of the Indian Telegraph Right of Way Rules 2016 that have futuristic provisions that allow restriction- free location selection of cellular towers, single window clearance for right of way approvals, defined time-period for allotment of cell- site, appointment of Nodal officers, nominal administrative fees and deemed approval etc. extensively supporting the Digital India mission[26]. Although state governments have adopted the Right of Way Rules but the municipal bodies create unnecessary delay in giving approvals for cellular tower installations which delay network rollouts in India.

Similarly, the Government must take steps to reduce the debt burden of the cellular operators so that they may be motivated to make investments in the industry. Multiple taxes, penalties and fees overlap with each other and discourage foreign investments in the industry.

Furthermore, the policies governing the wireless cellular mobile communications industry should be harmonised with each other so that all the factors, that are significant to improve the economic contribution of this industry, support the objectives of the National Digital Communications Policy- 2018 and can make the implementation of the policy more effective.

[24] Nishith Desai, *5G Technology in India: Strategic, Legal and Regulatory Considerations*, 23 (Oct. 2020), 5G Technology in India- Nishith Desai- Oct 2020.pdf. (last visited July 3, 2021).
[25] *Ibid*.
[26] The Indian Telegraph Right of Way Rules, 2016, (Nov. 15, 2016), Department of Telecommunications, https://dot.gov.in/sites/default/files/2016_11_18%20RoW%20Policy.pdf. (last visited July 3, 2021).

CONCLUSION

The history of human development is connected with technological evolution. With each generation, mankind creates new inventions which improve the quality of life. The adoption of 5G, data will be the new fuel which will propel India towards development by implementing the objectives of 'Digital India' programme. The pandemic may have restricted the physical movement of mankind but it failed to restrict the Wireless Mobile Communications as it could travel across boundaries to connect people across the globe. The government is constantly working towards the deployment of 5G but the technology can only be adopted faster when the regulatory framework and policies governing the industry are streamlined. The Government should give incentives to digital service providers for establishing digital infrastructure in rural areas so that they may get motivated to invest in villages. The government should also formulate strong laws to ensure data and network security so that the national security as well as the fundamental right to privacy of the citizens of India is not compromised. Although the industry has been facing several challenges economically yet the industry has great potential for exponential growth. With the conflation of Digital India, Make in India, Atmanirbhar Bharat and Bharat Net Programmes, India is positively moving towards self-reliance and self-sustainability.