

# Digital Transformation – the Frontier of Evolution

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**Abstract -- Current average data consumption per user of 18.4 GB is expected to rise to 50 GB by 2027, indicating enormous growth rate of mobile traffic. Digital infrastructure industry has played a pivotal role in the unhindered growth of India's telecom sector. Launch of GatiShakti Sanchar Portal is a visionary step towards Ease of Doing Business. Likewise, GatiShakti program marked a paradigm shift in decision-making to break the silos of departmentalism and ushering integrated planning and execution of projects to address the critical issues of multi-modal and last-mile connectivity. While everyone wants trouble-free digital connectivity, ground-level obstacles to make it happen are overwhelmingly large and overcoming them is a time and resource-consuming activity.**

**This paper presents the current digital technology scenario and challenges ahead.**

*Keywords: Digital Infrastructure Providers Association, GatiShakti Sanchar Portal, Gati Shakti program, Single-window clearance by Department of Telecommunications, National Broadband Mission Directorate, Sharing telecom towers, COVID-19 challenges*

## I. INTRODUCTION

AS the world is becoming increasingly dependent on the Information and Communication Technologies (ICTs) industry, new technologies and innovations in this domain are driving the world towards complete digital transformation. This digital transformation is aiding growth of the digital economy and information society which has formed formidable lines of defence against any critical and challenging situations. This has been proved all over the world during the COVID-19 pandemic. Telecom and ICT sectors have played a major role in meeting the challenges during the pandemic. Almost every facet of our life be it education, office work, business, banking, health, commerce and social connectivity, sailed smoothly and successfully during these turbulent times.

We are on the verge of experiencing 5G, Artificial Intelligence (AI) and Machine Learning (ML) in our daily life as these are very promising technologies and are going to accelerate digital transformation in the new normal situation. The next decade belongs to the advancement in these technological fields and very soon, we all shall witness a paradigm shift in our day-to-day functioning and handling of challenges.

Telecom Towers are the key in 5G era with the number of

telecom subscribers rising every day while the average demand-per-user of data simultaneously grows.

TABLE 1 – TELECOM SUBSCRIPTION DATA AT A GLANCE (AS ON 31 JULY 2022)

Particulars	Wireless	Wireline	Total (Wireless+ Wireline)
<b>Total Telephone Subscribers</b> (Million)	<b>1148.03</b>	<b>25.63</b>	<b>1173.66</b>
Net Addition in July, 2022 (Million)	0.64	0.06	0.70
Monthly Growth Rate	0.06%	0.24%	0.06%
<b>Urban Telephone Subscribers</b> (Million)	<b>626.74</b>	<b>23.66</b>	<b>650.40</b>
Net Addition in July, 2022 (Million)	1.25	0.06	1.31
Monthly Growth Rate	0.20%	0.25%	0.20%
<b>Rural Telephone Subscribers</b> (Million)	<b>521.29</b>	<b>1.97</b>	<b>523.26</b>
Net Addition in July, 2022 (Million)	-0.61	0.002	-0.61
Monthly Growth Rate	-0.12%	0.11%	-0.12%
<b>Overall Tele-density*(%)</b>	<b>83.25%</b>	<b>1.86%</b>	<b>85.11%</b>
Urban Tele-density*(%)	129.88%	4.90%	134.78%
Rural Tele-density*(%)	58.15%	0.22%	58.37%
Share of Urban Subscribers	54.59%	92.31%	55.42%
Share of Rural Subscribers	45.41%	7.69%	44.58%
<b>Broadband Subscribers</b> (Million)	<b>777.95</b>	<b>29.47</b>	<b>807.42</b>

*“Disruption is often the biggest instigator of change & transformation”*

The infrastructure plays an extremely symbiotic role in the success or failure of any industry. For telecom in specific, there is no exception. Therefore, the digital infrastructure industry has played a pivotal role in the unhindered growth of India's telecom sector. It is quite evident that the growth of telecom services could not have been possible without a robust and ubiquitous telecom infrastructure.

Due to the lockdown imposed on the citizens, there was a dire need for accommodating the influx of data consumption in the country. While this challenge posed a key predicament for the Infrastructure Providers (IPs), they took the only possible way forward *i.e.* to enable a collective push toward digital transformation.

There is no doubt that Digital inclusion can help improve any nation's economy and enable sustainable development. It is believed that India's digital economy has the potential to reach \$1 trillion by the year 2025, driven by the increased proliferation of smartphones, increased internet penetration, growth of mobile broadband, and growth of data and social media.

## II. DIGITAL CONNECTIVITY CHALLENGES

While deploying digital infrastructure for digital connectivity at any work or home place, there are multifold actions required - permissions to get both at the state level and central level, construction work to happen, arrangement of power to energize the active telecom asset, ensuring compliance to all rules and regulations. Further, it requires independent government departments to work in close coordination and collaboration

Getting permission(s) for the most optimum OFC route is a herculean task in itself, even if there are clear guidelines available in a state. There are charges and levies to be paid which are through the roof in many cities, not just the metros. There are challenges to getting a basic Electricity Board connection, despite being an Electricity surplus nation, personally proud of this achievement for a country like ours, having 24x7 power at the telecom infrastructure is still a distant dream.

Furthermore, despite telecom being a central subject, there are state rules for digital infrastructure service providers to be followed. There is a 'Right of Way (RoW)' regulation in every state which lists down the procedure for putting up the digital infrastructure.

## III. NATIONAL MASTER PLAN

Among all this chaos, the National Master Plan, popularly known as *GatiShakti* comes as much needed and timely intervention. The PM *GatiShakti* – National Master Plan for multi-modal connectivity – that was launched in October 2021 is a digital platform that will bring 16 ministries together. The prime objective of this mega initiative is integrated planning and coordinated implementation of infrastructure connectivity projects. This multi-modal connectivity platform is envisaged to cut logistic costs and improve the economy to develop infrastructure in the country.

The *GatiShakti* program marked a paradigm shift in decision-making to break the silos of departmentalism and bring in more holistic and integrated planning and execution of projects with a view to addressing the issues of multi-modal and last-mile connectivity. As per the proposed Plan, all the existing and proposed economic zones have been mapped along with the multimodal connectivity infrastructure in a single platform. Individual projects of different Ministries are examined and sanctioned within the parameters of the overall plan, leading to synchronization of efforts. *GatiShakti* is helping in bringing the needed synergy to create a world-class, seamless multi-modal Digital Infrastructure in India.

Hence, challenges can only have a debilitating effect on the industry when the authorities do not pay timely heed to those challenges. In that regard, we must express our gratitude to the honorable authority for not only giving due consideration to these issues but also taking steps for alleviating these issues.

RoW guidelines are being carefully examined by the government with regard to these concerns and the role of DISCOMs and Electricity Boards is also being augmented for the sole purpose of making India a 5G ready nation.

## IV. SINGLE-WINDOW CLEARANCE SYSTEM

In May 2022, the DoT launched a single-window clearance system for obtaining RoW clearances online; which has been more than welcomed by the industry as it addresses a very major part of the incumbent issues at hand.

As per Ericsson Mobility Report, November 2021, the average data consumption per user is 18.4 GB which is expected to rise to 50 Gb by 2027. To meet the requirement of exponential data growth, fiberisation is a necessity.

To interconnect the towers, a basic function to make connectivity reach an end-user, the OFC has to be laid, a must element, more so in the upcoming 5G and subsequent technologies. Currently, there is no transparently available OFC network layout showing the capacity which can be utilized.

In spite of numerous challenges besides being capital-intensive faced by the Indian Telecom Industry, owing to the collaborative efforts led by DIPA with various authorities & its members; the infrastructure industry reduced the CAPEX burden on telecom operators by bringing in tremendous investments through a nouveau concept of sharing. This model led to a faster turn-around-time vis-à-vis geographic rollout and improved QoS owing to better coverage.

Energy forms a significant component of telecom tower site operations as the sites are required to be operational 24x7 all through the year. Also, necessitated arrangements for backup in the form of diesel generators, batteries and the newer forms of green energy setups further increase the load of permissions, and approvals apart from the increase in Capital Expenditure (CAPEX) and Operating Expenditure (OPEX). As serious players and responsible citizens, we recognize the need for steps to reduce the carbon footprint of the telecom sector. The IP's are aiming at sustainable growth by adopting green initiatives to reduce the usage of diesel and minimise their carbon footprint.

While there advancements and proliferation of next generation networks appears to be at the horizon; the challenges faced by the IPs and the Telecom sector as a whole have also considerably grown - given the complexity of the Indian Telecommunications market.

Through significant increase in demand for robust and faster networks with rise in data consumption per user now at 18.4GB per user, we believe industry has been superbly accommodating and adapted to the causality arising from this demand very well wherein the role of DIPA has been significant.

### V. GIANT LEAP FORWARD

With the *GatiShakti* Plan helping in coordinating and synchronizing the activities of each department, as well as of different layers of governance, the Ministry of Communications, Department of Telecommunications (DoT) and National Broadband Mission Directorate, the Centralized RoW Portal – *GatiShakti Sanchar Portal*, is a giant step forward towards “Ease of Doing Business”, bringing transparency, accountability and responsiveness to all telecom stakeholders while processing the application. This recently launched portal for Right of way (RoW) approvals, is a central collaborative platform between all stakeholders, including central and state/UT government(s), local bodies, and service providers, to facilitate faster RoW deployment to boost digital infrastructure in the country.

The telecom industry has noticed a significant reduction in the time taken to get permissions for the installation of telecom towers and the laying of optical fibre cables across all states since the portal’s inception. Since the portal’s introduction, over 48,230 RoW pending applications have been approved across India, improving telecom connectivity.

The advent of the *GatiShakti* Sanchar Portal is proving to be a game-changer in terms of getting long-awaited RoW applications approved quickly and efficiently. It also provides a strong mechanism to achieve the National Digital Communication Policy-2018 goal of “Broadband to All”.

The success of such digital initiatives is central to realizing India’s dream of being a leading digital economy - having superior digital infrastructure and availability to every citizen, with governance and services on-demand, as well as digital empowerment of every citizen. For broadband to create positive externalities and further economic growth, including specific sectors such as healthcare, education, financial services, agriculture, energy, and infrastructure, there is an imperative to drive and achieve goals, as envisaged in the National Digital Communications Policy, 2018.

### CONCLUSION

In the process of development, our transitioning economy has been through various phases and now, it’s stepping into the ultimate future. With the nation moving fast towards a robust digital infrastructure, I must say, the acceleration has just begun, we are merely at the cusp and still have a long way to go!

In due course of time, when the 5G expansion and rollouts happen in full swing, the IPs will be in pole position for not just accommodation of influx users; but also enablement and incorporation of ancillary elements such as data centres, content delivery networks, hybrid infrastructure capable of supporting EV charging stations on premises, and small cell rollouts for 5G. With the continuous support of our government, truly digital India is no more a far cry!



**Tilak Raj Dua** is the Director General, DIPA - which stands for Digital Infrastructure Providers Association and Chairman ITU-APT. An engineering graduate with diploma in business management and export marketing, he has over 35 years’ experience in the telecom sector. His experience includes all facets of telecom be it product development, business development, telecom licensing, regulatory issues with respect to interconnection / roaming / unified licensing and infrastructure sharing / mobile number portability, spectrum management, spectrum related issues like spectrum pricing, efficient utilization and spectrum reframing, finalization of joint ventures, technical collaboration, introduction of new product, launch of cellular services in india and finalization of licence agreements / interconnect agreements etc.

Served as Deputy Director IAF - from 1967 to 1989, Director, Shyam Telecom Ltd. (Regulatory) – from 1994 to 2000, Director, Bharti Airtel Ltd. (Corporate Affairs & Regulatory) – from 2000 to 2005, Deputy Director General: COAI – from 2006 to 2011, Executive Director Augere Mobile Broad Band Wireless Pvt. Ltd. – 2011, Director General Tower and Infrastructure Providers Association: since Jan 2015 till date.

Has many firsts to credit like finalization of joint ventures, technical collaboration, introduction of new products, launch of cellular services in India and finalization of licence agreements/interconnect agreements. Works with institutions like ITU, APT, WWRF for spectrum/regulatory matters.