TV RAMACHANDRAN

BRIDGING THE DIGITAL DIVIDE WITH SKYWARD SOLUTIONS

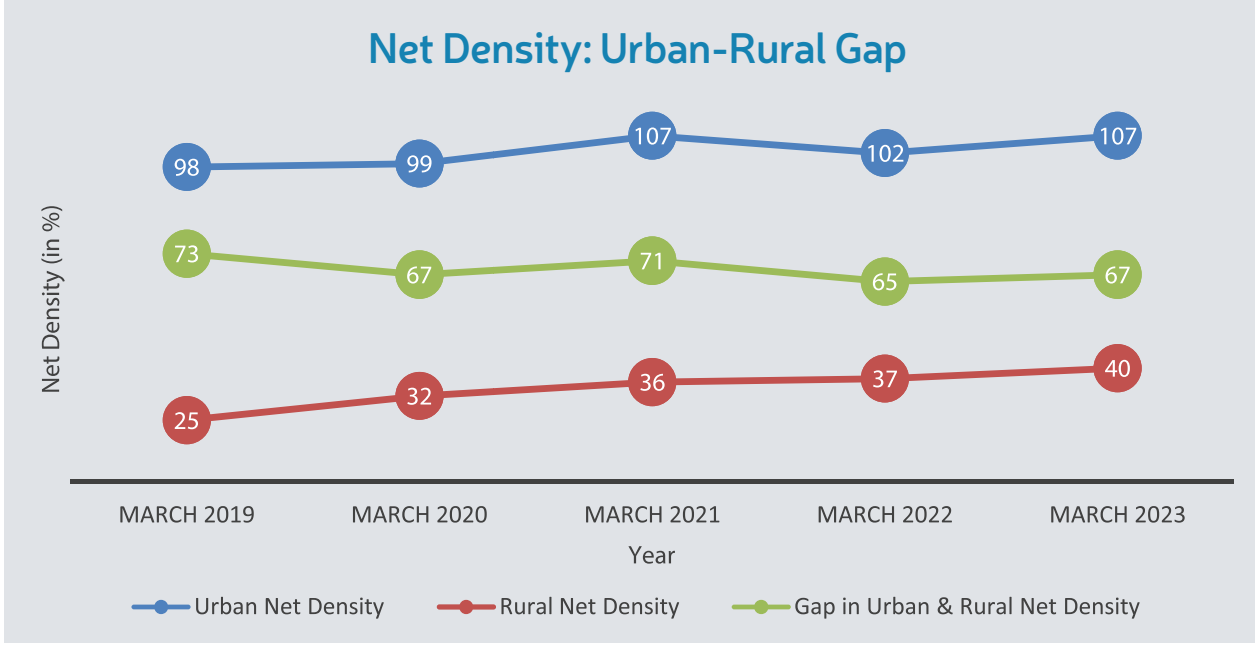
India's Viksit Bharat vision hinges on high-quality broadband access for all, with Satcom bridging the digital divide and driving inclusive growth

The achievement of the national vision of Viksit Bharat with a consistent GDP growth rate of over 10% makes access to good-quality broadband an indisputable imperative for all citizens of India, whether urban or rural. Most of the Pillars of Digital India are premised on the foundation of high-quality broadband. Inclusivity and *'sab ka sath, sab ka vikas'* are paramount.

Despite years of dedicated efforts from the government and the private sector, the issue of inadequate, unreliable, and unaffordable broadband connectivity for the remote, unconnected, and underserved many remains a pressing concern. The urban-rural net connectivity gap, which stands at a staggering 65%, underscores the urgency of the situation.

It may be noted that the above divide does not take into account the technology divide between 2G, 4G, and 5G, nor the divide between superior fixed broadband and more widespread mobile broadband (an estimated 250 million 2G users still exist). None of the terrestrial technologies has succeeded in bridging the divide between net and broadband access.

However, there is hope. Practical and operational challenges and financial viability issues have been and still are being faced in connecting such difficult-to-reach and underserved areas of our vast and diverse country. Here, Satellite Communications (Satcom) can emerge as a real saviour and, if applied appropriately, can help successfully bridge the digital divide, offering a beacon of hope for the future.



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THE SATCOM OPPORTUNITY

In 2023, PwC, in collaboration with the Indian National Space Promotion and Authorization Centre (IN-SPACe), industry stakeholders, and space actors, released a significant report titled 'A Decadal Vision for the Space Sector'. This report projected that India's satcom sector, valued at USD 2.3 billion, will soar to USD 14.4 billion by 2033.

While the country's space economy currently represents only 2% of the global economy, IN-SPACe is targeting an 8% market share by 2033. In this context, the next major leap for India is to harness Satcom services to connect the country, especially the remote regions, and boost the national economy by eliminating the digital divide. This strategy should help India surpass its economic target.

The Government of India has implemented several policy initiatives to boost the Satcom sector in the last few years. While these policy measures have helped propel the space sector, it is true that the fruits of these actions have yet to materialise fully. One significant outcome has been the entry of modern technology LEO satellites, which could deliver low latency, high-quality broadband to the remote and unconnected to bridge the digital divide.

THE NEED FOR CLARITY

The government's reforms have spurred the interest and entry of new players like Eutelsat OneWeb with Bharti Airtel, Amazon's Kuiper, Jio Satellite Communications, Starlink, and others. Judging by some of the happenings, some prominent entrepreneurs await a clearer signal that significant investments will be welcomed and protected.

Many such entrepreneurs are interested in something other than small-time plays of, say, a few scores of millions of dollars but are probably looking to come in with a big scale and a few billion dollars to make the game worthwhile. The country needs to think big and introduce bold, game-changing policy revisions, for example, making drastic reductions in spectrum and other costs to help connect the unconnected and underserved public, not lose time in conservative incremental changes. Only such significant changes would bring in the large investments that would generate the considerable employment and digital economy benefits that India desires.

Again, while the Government of India has brought sufficient regulatory clarity regarding spectrum assignment for satellite communications, the action is incomplete. The First Schedule of The Indian Telecommunications Act, 2023 clearly stipulates "Assignment of spectrum through an administrative process" for "satellite-based services such as teleport, television channels, direct-to-home, headend in the sky, digital satellite news gathering, Very Small Aperture Terminal, global mobile personal communication by satellites, national long distance, international long distance, mobile satellite services in L and S bands."

It is puzzling that, despite such clarity, there is still much ambiguity in the environment, probably due to some rumours generated by some vested interests, and this is greatly harming the sentiment of the sector and retarding the flow of investments.

In line with the Indian Space Policy 2023, IN-SPACe released the norms, guidelines and procedures (NGPs) in May 2024. The NGP document encompasses a wide array of verticals requiring authorisation, including space-based communication, the establishment and operation of remote sensing and amateur satellite systems, access to Indian orbital resources for Indian entities, the dissemination of space-based earth observation and remote sensing data, the operation of space transportation systems, and the establishment and operation of ground systems. It also addresses liability-related aspects and the registration of space objects.

The NGP guidelines aim to support the government's efforts to create a predictable regulatory regime, enhance transparency, and facilitate ease of doing business in the satcom sector.

THE EVOLVING LANDSCAPE

India ranks fourth globally in terms of investments in the Satcom sector, with nearly USD 2 billion invested. A testimony to India's forward-looking and progressive policies in the last few years is reflected in the growth

Industry data indicates a sharp increase in interest from Indian start-ups, with the number of space-focused companies growing from one in 2022 to 200 in 2024.

IN BRIEF

- The Viksit Bharat vision hinges on high-quality broadband for all citizens.
- The urban-rural broadband gap remains high at 65%, highlighting a significant digital divide.
- Satellite communications can bridge the digital divide in remote areas.
- India's Satcom sector is projected to grow from USD 2.3 billion to USD 14.4 billion by 2033.
- Government policies and modern LEO satellites are key to improving broadband access.
- Liberalising regulations and attracting FDI can boost Satcom's growth and connectivity.

of the startup ecosystem in the past couple of years, many of whom have been incubated by both ISRO and IN-SPACe.

Industry data indicates a sharp increase in interest from Indian start-ups, with space-focused companies growing from just one in 2022 to 200 in 2024. However, even with this upsurge in startup activity, 2023 saw only about Rs 10 billion or USD 0.12 billion invested in the country's space sector in eight months. Nonetheless, the country needs multiples of this to catch up with the leading players worldwide.

Industry stakeholders believe that as Satcom technology becomes more affordable and easier to adopt, extending the digital network infrastructure will help connect the remotest and most disconnected parts of the country. This is in line with our vision to become a digitally empowered nation and a major global economy.

Liberalising regulations to attract FDI and simplifying technology transfer norms will remove other bottlenecks impeding Satcom's growth. Moreover, further leveraging INSPACe to facilitate collaboration between the government and the private sector to develop and enhance Satcom technology-based solutions would be beneficial. This can address significant barriers, such as technological challenges and investment risks, ensuring a more robust and resilient Satcom infrastructure.

The impact of satellite communication extends beyond communication and represents a gateway to innovation and progress within the technology sector. From enhancing disaster response and management to revolutionising agricultural practices through precision farming techniques, satellite technology has become deeply intertwined with various aspects of Indian life. Educational initiatives, empowered by satellite connectivity, have reached even the country's most remote corners, unlocking doors of opportunity for the youth and driving progress towards a more knowledge-driven and inclusive society.

It has now emerged as an indispensable tool for tracking progress towards the SDGs and crafting targeted public policies. Researchers recognise the instrumental role of satellite communication in delivering granular insights into village and neighbourhood development, bridging information gaps, and enabling tailored interventions towards a more equitable and sustainable future.

As India continues its journey towards progress and development, its story will stand as a testament to the transformative power of satellite communication in shaping a brighter future for all. With its diverse demography and strong propensity to innovation, India is poised to unlock new frontiers of possibility using satellite communication, thus driving inclusive growth and prosperity for all future generations.

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(Views are personal.)

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