



## Perspective



# Extra Mile – Walking the Talk on Rural Broadband with 5Ps of Partnership

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**B**roadband access provides the opportunity to do things efficiently to achieve better efficiencies for people and countries and to ensure higher growth of economy and overall social development. Broadband penetration is a crucial factor, which is increasingly becoming the benchmark used to ascertain the health of a nation's economy and social well-being.

Providing broadband connectivity in geographically challenged, remote and rural areas, underserved by profit-driven market players, has become a challenge for governments in the developing world, who are tasked with this role in case of market failure. In situation of such a “double-fault” civil society through various CSR and philanthropy acts is trying to pitch-up but the task is too daunting to be accomplished through such island types of initiatives. This paper brings out an innovative business model to achieve this through 5Ps of partnership of various stakeholders mainly, People, Panchayat, Public, and Private.

### Challenges to the Rural Broadband Access and Way Forward

*Need for sustainable business model.* Main reason for low availability of broadband in rural and remote areas is absence of a commercial business model, as operators are not sure about the return on investment (ROI) and perceive lots of risks on demand side. The revenue generated from the operation of the network must exceed the network's initial capital investment recovery and the ongoing operating costs. The financial success of any communication network is based on the average revenue per user (ARPU) and the number of users. Urban areas with high density have more opportunity to generate higher revenues than low-density rural areas. It is for this reason, the commercially prudent telecom service providers focus on providing services to more highly populated areas, creating an economic “digital divide” for lower-density areas like rural. Therefore, some innovative business models based on out-of-box thinking are required to be tailor-made for rural areas.

*Missing middle- and last-mile connectivity.* For proliferation of broadband in rural and remote areas,

adequate infrastructure, both for access as well as backhaul, is a prerequisite. Lack of backhaul infrastructure to provide middle-mile connectivity has grossly affected the deployment of broadband in rural India. The NOFN project (BharatNet) was launched to bring optic fiber as close to the end-user as possible so that high-speed broadband can be made available to the customers, laying OFC connecting all the 250,000 gram panchayats of the country and non-discriminatory access was to be provided to all service providers. The network was supposed to be commissioned in two years; however, as per the information available, as on March 2016, only a limited number of gram panchayats have been connected. Recently, TRAI invited various industry actors asking for suggestions on implementation models with an objective to improve overall BharatNet delivery and has provided landmark recommendations on best implementation model for the state-led program with an increased participation from private sector including emphasis on existing network infrastructure utilization, pushing the ball back to the government. As far as last-mile access is concerned, it is yet to get due mention in various government schemes and regulatory recommendations and that is what is leading to double-fault of both the market as well as regulatory failure.

*Active infrastructure sharing through open access networks.* Active infrastructure sharing can play a major role in expediting the rollout of broadband access network across the country, especially in rural India. Rural rollouts carry a higher operation expenditure. TRAI had acknowledged the need to optimize available resources while ensuring competition and availability of services at affordable prices. It is a well-known fact that infrastructure sharing can reduce costs and promote rollout of services more cheaply and quickly. Sharing also enables more rapid initial network deployment, as well as cost-effective coverage in under-served areas by making use of existing national infrastructure in an open-access manner. Only recently, the government has made the enabling provisions for the same. In addition, the government has also heralded the long-pending VNO regime to enable a low entry for the innovative niche operators in rural areas, who can bring low-cost network deployments and service offerings.



### **Innovative Technology Solution for the Rural Broadband Challenge**

In addition to various infrastructure-related challenges, the cost-effective and high-reliability technical solution as well as the availability of reliable power supply required for the system in rural areas are other show-stoppers. Also, there is unavailability of suitable indoor space for installing the network equipment and keeping it safe and secure.

Any technical solution to be suitable in the above environment should meet 3L criterion of low cost, low power, and low maintenance, which can also reduce the cost by making use of existing infrastructure and unlicensed spectrum, which is free.

Normally, installation of hotspots needs building space/shelter, a power supply source, and a tower on which the access network equipment is to be installed. The concept of “Everything on Tower” solution does away with all the above-mentioned cumbersome and costly requirements and physically put everything on the top of the tower in a secure and safe manner.

It enables the creation of a public hotspot for use of the telecom service providers to enable them to provide much-needed broadband access to rural masses as a business case without any perpetual subsidy. It is based on the availability of the subsidized Internet backhaul as a part of NOFN project of the government or through a PSU telco like BSNL and making use of abandoned/discarded telecom towers of MARR legacy or some other existing structure of around 10–15 meters height in rural areas.

### **Out-of-Box Business Models for Rural Broadband**

Main reason for negligible availability of broadband in rural and remote areas is absence of a commercial business model. The traditional business case to provide broadband services does not sustain in rural areas where the population densities are lower and the cost of implementing a broadband network exceeds potential revenues. The cost of the telecommunication network infrastructure in urban areas is justified due to high density of the subscriber base in these areas. However, if the telecommunication networks, especially those supporting

broadband services, are extended to the geographically large rural areas with the same deployment of architecture, per user cost of the infrastructure (CapEx) and the additionally increased operating cost (OpEx) make it economically unviable. Therefore, the penetration of the broadband networks in such remote and rural areas demands new thinking and models to make the broadband network operations economically viable.

The business of broadband in rural and remote areas is not a normal business case but it is a complex ecosystem which needs to balance out the conflicting requirements of higher cost of deployment and the lower revenue potential because of low paying capacity of the targeted customers. To make it an implementable proposition which is sustainable, all the stakeholders especially the government, regulators, service providers, local bodies, NGOs, and entrepreneurs have to play their role in this endeavor collectively.

### **Making It Happen – Extra mile through People-Panchayats-Public-Private-Partnership**

As it is all about funding in case of any infrastructure project of national importance, a judicious mix of various funding options mentioned below for creation of Infrastructure is required;

- Full public funding like USO funding of BharatNet (middle-mile backhaul)
- Viability gap funding (VGF) for any unviable link as recommended by the regulator
- Public-panchayat funding – government funding of backhaul and community funding of access network
- Public-private partnership (PPP) – backhaul public funded and access network private funded

As in India, none of the above options in isolated mode has delivered, a mix of various options to make use of the core competency, vision, and enterprise of various actors as well as making use of existing public infrastructure and third-party managed services avenue is required. This is what leads to creation of 5Ps, i.e., People-Panchayat-Public-Private-Partnership for moving the *extra mile* to *make it happen*. ■

*The author, Satya N Gupta, is Secretary General, NGN Forum*

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