



## DIGITALLY CONNECTING RURAL INDIA



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Global case-studies have demonstrated how wireless broadband plays a key role in rural society, impacting GDP, productivity and employment. In a study undertaken across 26 Latin American countries between 2003 and 2009, it was observed that a 10 per cent increase in broadband penetration resulted in an average increase of 3.19 per cent in per capita GDP.

The Government's ambitious "Digital India" plan aims to digitally connect all of India's villages and gram panchayats by broadband internet, promote e-governance and transform India into a connected knowledge economy. By the year 2019, the 'Digital India' program envisages that 250,000 Indian villages will enjoy broadband connectivity, and universal phone connectivity. This is a truly visionary and commendable initiative. However, to implement this vision in a country where most of the population resides in rural areas is very challenging. It can best be done by creating Digital "Town Squares" – which will be tower-based sites that enable the Smart Village and would become the focal point for providing information, social, e-learning and e-governance services to villages. This can become the spring board for rapid economic growth in the rural areas.

Global case-studies have demonstrated how wireless broadband plays a key role in rural society, impacting GDP, productivity and employment. In a study undertaken across 26 Latin American countries between 2003 and 2009, it was observed that a 10 per cent increase in broadband penetration resulted in an average increase of 3.19 per cent in per capita GDP. In Africa, 90 per cent of the total broadband penetration is mobile-based. E-commerce, e-health/education and e-governance are already the key applications. For example, M-Pesa mobile banking service in Kenya carries 20 per cent of the country's GDP.

Digital India Programme aims to transform India into digital empowered society and knowledge economy. This is a follow up to the key decisions taken on the design of the programme during the meeting on Digital India Programme in August 2014,

and to sensitize all ministries to this vast programme touching every corner of the government. This programme has been envisaged by Department of Electronics and Information Technology (DeitY).

The programme will be implemented in phases from the current year till 2018. The Digital India is transformational in nature and would ensure that Government services are available to citizens electronically. It would also bring in public accountability through mandated delivery of government's services electronically; a Unique ID and e-Pramaan based on authentic and standard based interoperable and integrated government applications and data basis.

Digital India is an initiative by the Centre to ensure that Government services are made available to citizens electronically by improving online infrastructure and by increasing Internet connectivity. It was launched on July 1, 2015 by Prime Minister Sh. Narendra Modi. The initiative includes plans to connect rural areas with high-speed internet networks. Digital India has three core components. These include:

- The creation of digital infrastructure
- Delivering services digitally.
- Digital literacy

A two-way platform will be created where both the service providers and the consumers stand to benefit. The scheme will be monitored and controlled by the Digital India Advisory group which will be chaired by the Ministry of Communications and IT. It will be an inter-Ministerial initiative where all ministries and departments shall offer their own services to the public Healthcare, Education, Judicial services etc. The Public-private partnership model shall be



adopted selectively. There are plans to restructure the National Informatics Centre. This project is one among the top priority projects of the Government.

Over the past decade Internet has changed the way we work, socialize and how we share information. Internet today is considered as the driving economies around the Globe and it has direct impact on GDP as it has greater magnitude and reach. India has seen a major shift in preferences of people and shifting to internet services as it is easily available and easily accessible to common man at reasonable prices. India has emerged as one of the major players in IT sector as also it is known as IT hub for various multinationals across Globe.

India has a population of more than 1.2 billion out of which 52 per cent of the population is below 25 years of age. Having 900 million mobile connections (130 million smart phones and over 200 million internet users). India online population is growing steadily.

According to sources, Internet services are mostly used in Urban areas as compared to rural areas but the trend is likely to be changed in coming times.

This is all because of Central and State Government initiatives. Government policies have made the difference today over 1100 schemes can be accessed PAN India. The major emphasis is being given to provide better services to the people alongside improving internal efficiency.

As a nation, India has laid emphasis on National e-governance plan and has given its approval for Digital India – A programme to transform India into digital empowered society and knowledge economy.

This is a step taken further by the Government to bring all the Ministries, State Governments under one Umbrella through which it can promote various sectors such as electronic services, products, devices, manufacturing etc.

Through this new initiative this will create more job opportunities and people's aspirations can also be met. This creates convenience to all citizens i.e. information will be easily available, no standing in queues, hassle-free transactions etc.

In future prospects this will help in bridging the gap between rich and poor and all can be at a same platform to avail services. One of the best

examples in today's scenario is IRCTC i.e. booking and cancellation of rail tickets online. In recent times it has seen a major shift in people's perception for booking/cancellation of railway tickets. Almost 70 percent of railway tickets are now booked online. Another good example is Banks in India, over the past decade all banking services are now available online through internet. This industry is considered as one of the best services Industry whereas people of India can be treated as consumers. This approach is termed as CITIZEN-CENTRIC approach.



### Project

Broadband in 2.5 lakh villages, universal phone connectivity, Net Zero Imports by 2020, 400,000 Public Internet Access Points, Wi-fi in 2.5 lakh schools, all universities; Public wi-fi hotspots for citizens, Digital Inclusion: 1.7 Cr trained for IT, Telecom and Electronics Job creation: Direct 1.7 Cr. and Indirect at least 8.5 Cr. e-Governance & eServices: The Government of India entity Bharat Broadband Network Limited which executes the National Optical Fibre Network project will be the custodian of Digital India (DI) project. BBNL had ordered United Telecoms Limited to connect 250,000 villages through GPON to ensure FTTH based broadband. This will provide the first basic setup to achieve towards Digital India and is expected to be completed by 2017. Optical fibre cables have been laid out in more than 68000 village panchayats.

### Broadband Highways

- This covers three sub components, namely Broadband for All Rural, Broadband for All Urban and National Information Infrastructure.
- Under Broadband for All Rural, 250 thousand village Panchayats would be covered by December, 2016. DoT will be the Nodal Department and the project cost is estimated to be approximately Rs. 32,000 Cr.



- Under Broadband for All Urban, Virtual Network Operators would be leveraged for service delivery and communication infrastructure in new urban development and buildings would be mandated.
- National Information Infrastructure would integrate the networks like SWAN, NKN and NOFN along with cloud enabled National and State Data Centres. It will also have provision for horizontal connectivity to 100, 50, 20 and 5 government offices/ service outlets at state, district, block and panchayat levels respectively. DeitY will be the nodal department and the project cost is estimated to be around Rs 15,686 Cr for implementation in 2 years and maintenance & support for 5 years.

### Broadband Penetration for Digital Villages

For this concept to be successfully implemented, certain conditions need to be met:

- First the telecom infrastructure for broadband facilities have to be available to a critical mass of consumers – a few islands of connectivity will not add significant economic value.
- A wide range of applications and content relevant for rural consumers must be accessible on mobile devices and the operators must provide service packages affordable to the target user. Broad based availability of broadband services, through handheld devices, is a pre-requisite for the achievement of the goals of 'Digital India'.

The greatest challenge in providing such affordable broadband coverage is the wireless "last-mile" link. Typically, carriers will extend data coverage to rural areas after a well-developed network of telecom towers is established, with optic fiber/microwave back haul.

Unfortunately, telecom infrastructure providers find rural towers quite uneconomic. In most countries, towers are built in rural areas with government subsidy and support. These Governments make land, rights of way and infrastructure available for rural mobile networks at low or no cost. The 'Digital India' plan will not deliver the desired results unless NOFN is linked to telecom towers, which provide critical 'last mile' wireless broadband services to rural households.

In this context, rural telecom towers are, and will remain, a key component in taking broadband down to the village level.

### Digital "Town Squares"

Globally, cities have an open public space like a "town square" which become a focal point for recreational and social activity. In a similar fashion, the site of the telecom tower can become a focal point – like a Digital "Town Square" for providing services to the village. Towers provide in-site physical infrastructure, each with its own ecosystem of energy, security etc., which can be utilized to deliver several critical services and facilities. These towers can extend significant benefits to the village's economy, as demonstrated in several countries in Africa.

E-Government and other value added services can be offered at these sites. These include utility payments (power, water and telecom bills) and e-learning stations. ATC, in its own endeavor to reach out to villages to provide e-learning, has installed Learning Stations (Kiosks) that have pre-loaded educational material that aim at enhancing functional computer literacy among school children aged 6 to 14 years.

ATC mobile towers are the nucleus for providing e-Learning in rural areas. This programme uses the 24/7 energy backup at the tower and the 3G/4G/WiMax broadband link to provide e-learning at a computer kiosk attached to the tower or at a nearby village school. A typical installation has:

- Two self-learning computer stations or "Kiosks" at ATC Tower sites.
- 24x7 uninterrupted power supply from the tower site.
- Guard room at the tower site to install the Learning Stations.
- 3G or Wimax wire/wireless internet data connectivity.
- Tower sites that are in close proximity to community schools/schools in rural and semi-urban areas so that children from these schools can use the Learning Stations. The ATC experiment has led to significant success in the area of e-learning. The same success could be replicated in other areas like e-governance, e-health, e-commerce as well.

### Public Private Partnerships

Currently, India has a total of 450,000 telecom towers, only 60 per cent of which are located in rural areas. These tracts have a poor tele-density of 46 per cent (according to TRAI). We need another 60,000 telecom towers in order to achieve the goals of the



'Digital India' programme. Rural telecom remains expensive. For 60,000 additional towers to be installed in rural India, Government has to provide incentives to businesses to make it attractive for them to invest Rs. 20,000 crores, not even counting the backhaul cost.

The only way, to get broadband penetration in rural India is through Public Private Partnerships (PPP).

With these features in place, implementing this program will be neither quick, nor easy. PPP committees need to be set up at the highest level in each state to facilitate the rollout and provision of these services. Despite the tediousness, scale of the venture, and time required to medium-term, and associated social and economic implications for India in the long-term, Public Private Partnership is an absolute necessity for the cause of 'Digital Villages'. To add value, our Indian subsidiary would be happy to participate in a few PPP pilot projects, by providing the Telecom Infrastructure that is essential to making these projects a success.

### Conclusion

The telecom infrastructure companies can play a major role in the eventual success of 'Digital India'. A well-orchestrated collaboration between the Government, policy makers, mobile network operators, and telecom infrastructure companies is crucial to the success of this venture. However, rather

than imposing taxes, levies, charges, and licence fees on the telecom sector, the government must provide 'gap funding' and other incentives to the Industry for expanding into rural locations; they also need to form a public-private partnership (PPP) to initiate and manage wireless broadband pilot projects in districts with government provided fibre backhaul (NOFN) aimed at creating smart villages.

Industry recognises that the next level of inventions and innovations could come out of India. While the services sector will continue to provide more opportunities, India's next surge would come from the manufacturing sector that would create more jobs and incomes in both urban and rural areas. In short, the future belongs to those corporations that would have a strategy of Make in India and Make for India. If Indian companies could focus on technologies and products that could help build Digital India, their manufacturing strategies could have greater relevance to a changing nation.

The success of the programme, however, will depend on the benefits accrued to people when it rolls out. If India is able to usher in a digital revolution, it will not just improve the lives of its billion-plus people whose ancestors laid the foundations of many great civilisations, but it will also benefit the world at large.

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### Big Boost To Solar Rooftop Projects

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi has recently approved the scaling up of budget from Rs. 600 crore to Rs. 5,000 crore for implementation of Grid Connected Solar Rooftops systems over a period of five years upto 2019-20 under National Solar Mission (NSM). This will support installation of 4200 MW Solar Rooftop systems in the country in next five years.

The capital subsidy of 30% will be provided for general category States/UTs and 70% for special category States i.e., North-Eastern States including Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Lakshadweep, Andaman & Nicobar Islands. There will be no subsidy for commercial and industrial establishments in the private sector since they are eligible for other benefits such as accelerated depreciation, custom duty concessions, excise duty exemptions, tax holiday etc,

This capacity of 4200 MWp will come up through the residential, Government, Social and institutional sector (hospitals, educational institutions etc.). Industrial & commercial sector will be encouraged for installations without subsidy. This will create the market, build the confidence of the consumers and will enable the balance capacity through market mode to achieve the target of 40,000 MWp by 2022.

The Government has revised the target of National Solar Mission (NSM) from 20,000 MWp to 1,00,000 MWp by 2022. This approval will boost the installations of solar rooftop projects in a big way and will act as a catalyst to achieve the goal of 40,000 MWp.

A large potential is available for generating solar power using unutilized space on rooftops in buildings. Solar power generated by each individual household, industrial, Institutional, commercial or any other type of buildings can be used to partly fulfil the requirement of the building occupants and surplus, if any, can be fed into the grid. So far, 26 States have notified their regulations to provide Net Metering/Gross metering facilities to support solar rooftops installations.