Satyaspeak
"Making It Happen"
ESSCI- 5th Anniversary Industry Keynote
New Delhi-15th Dec. 2017

"DigiGaon Job-Factory"- Creating Broadband Intraprenuers@ Rural India through WiFi

(Inspired by Prof. Yunus "Grameen" Dr. Kalam's "PURA" Prof. Prahalad "BOP" Vision & Govt's. "Rurban" Mission)

Satya N. Gupta NGNguru
Country Managing Director, BlueTown(India)
Hon. Secretary General, NGN Forum India
Vice-President, PTC India Foundation

Agenda

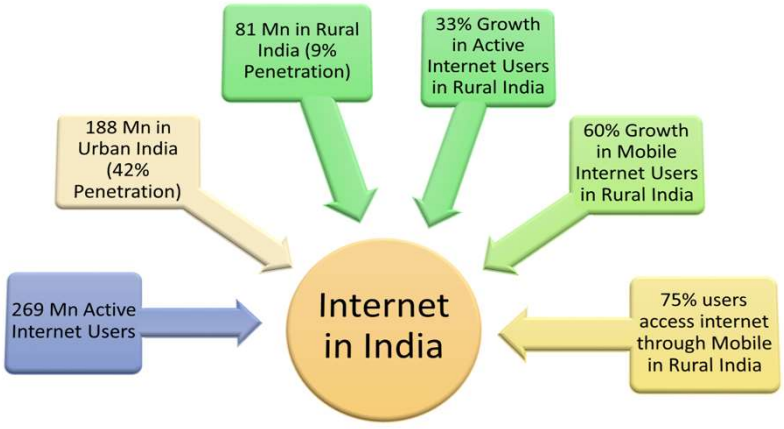
- "First Mile"- The Missing Link of Digital Bharat
- "Making It Happen"-Confluence of National-mode Programs
- RURBAN India-Digital Bharat through "Make-Skill-Start-Stand Up" India
- Bluetown Wi-fi Access Network- "Hotspot-as-Managed Service"
- Everything on the Tower (EOT)- A Great "Make In India" Opportunity
- DigiGaon Job-Factory-Creating 1 Million Blue-Collar Rural Wi-fi Champions
- Way Forward---Extra Mile- "People-Panchayat-Public-Private Partnership"

Digital Bharat- Challenges and Opportunity

- **National Telecom Policy (NTP) Targets-**
  - **NOFN-2.5 Lakhs Gram Panchayats (GP) to be connected with 100MBPS by Dec.2016**
  - **Broadband Subscribers in Country- 175 M by 2017, 600 M by 2020**
  - **Broadband Speeds- 2MBPS by 2017 and 100 Mbps by 2020**
- **Missing Links-**
  - **Only 80000 GPs completed by Dec,2017 (Just 30%)**
  - **Broadband Subs. only 115M (Rural 20 M. only)**
  - **Broadband Speed only 512KBPS (Available in Urban only)**
  - **Digital Divide- No Broadband Connectivity to Rural masses**
- **Challenges-**
  - **How to treat Rural Broadband Access i.e.. "Last Mile" as " First Mile"**
  - **How to "Home–deliver" the "Broadband services" to Rural masses**
  - **How to enable "Digital- India" to Include "Bharat" i.e.. across "Nation"**
- **Way Forward-**
  - **"Extra Mile" through People-Panchayat-Public-Private Partnership**

Rural Wi-Fi Initiative

Digital Bharat- A Reality Check!



Internet Access in Rural India is primarily on Handheld device & technology is 2G (Nowhere near Broadband)

Digital India Mission of Govt.

"To create an inclusive knowledge society through proliferation of affordable and high quality Broadband services across the Nation"

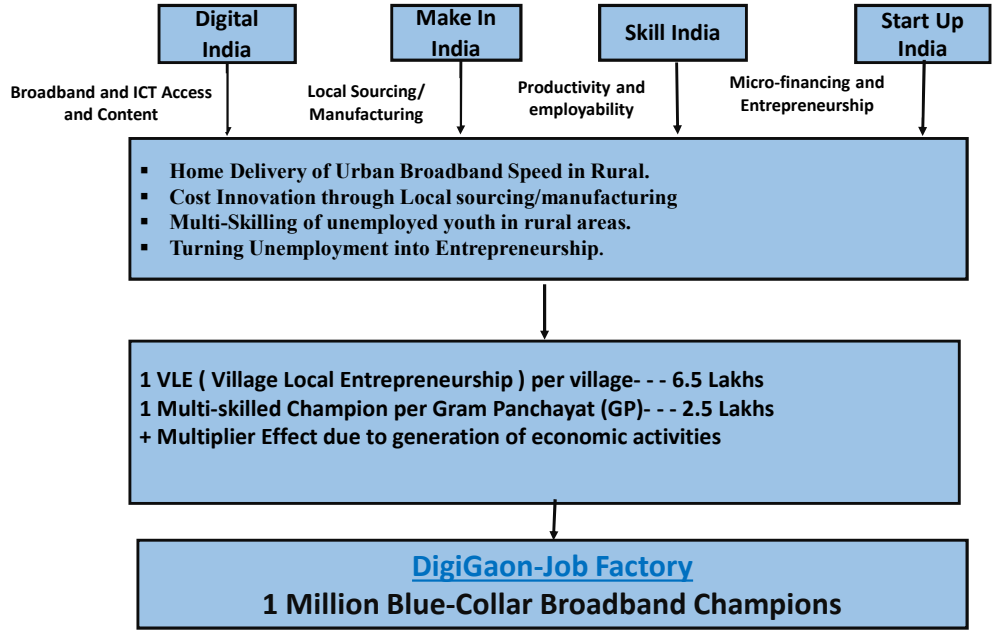
Digital India
Power To Empower

- **NOFN (National optical Fiber Network), named "Bharatnet" plans to connect 2.5 Lakh Gram Panchayats with 100 Mbps connectivity by Dec. 2016**
- **80,000 Gram Panchayats connected up-to Dec. 2017**
- **Missing link is "Home/Hand Delivery" of Broadband access to Rural Masses**

Skill India/Start-up/Stand-up India

- **While planning to create Wi-Fi hotspots in rural areas; we would need skilled manpower also to operate & maintain these hotspots**
- **Every village would require at least 1 VLE (Village Level Entrepreneur) for sales and recharging of broadband services and upkeep & operation of the Hotspot system. In addition at each Gram Panchayat one multi-skilled entrepreneur will be required.**
- **There is a need for creation of about 10 Lakhs Wi-Fi hotspots in 6.5 lakhs villages of India to cover the rural masses.**
- **Therefore about 1 million *"Village Level Entrepreneurs"* across the country need to be created to operate, maintain & manage the rural Wi-Fi Eco-system.**
- **These will be selected out of unemployed local youth who will be skilled as VLE's through various schemes of Govt. under Skill India & supported through MSME/ Entrepreneurship Policy 2015.**

Confluence of Mission Mode National Programs

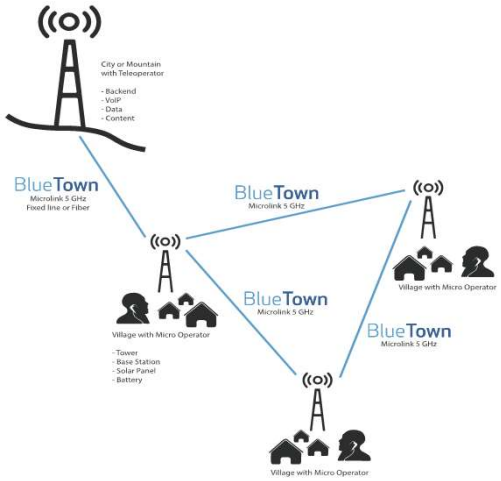


BlueTown Rural Wi-Fi Innovation- Tailor made for Bharat

- A BlueTown initiative, partnering with Govt. and Telcos in converting 2.5 Lakh Gram Panchayats into public hotspots with an innovative Wi-Fi solution (5L- Low Cost, Low Power, Low Maintenance, Local Control, Local Content) which in turn could lead to about 6.5 Lakh deployments across Rural India by using the modules & equipments locally sourced/manufactured.
- This Wi-Fi access solution shall compliment the Bharatnet (NOFN) project driven by the Government of India which aims to provide Broadband connectivity to masses in Rural India
- BlueTown Wi-Fi innovation has potential to create about 1Mn Blue-Collar *Entrepreneurs* in Rural India; thereby creating 1Mn jobs and opportunities for more through multiplier effect (3X).

BlueTown Connecting the Unconnected

BlueTown Rural Broadband Access Solution



- BlueTown platform will be connected to existing infrastructure (mast or fiber), and a partnership with local infrastructure and service providers, mainly BSNL.
- Users connect to the BlueTown Hot-Spot via Wi-Fi access around 0.5 km range.
- Users connect via traditional smartphones or laptops.
- BlueTown engages with VLE's (village level entrepreneurs) to take care of the Hot-Spot, selling prepaid broadband coupons and acts as BlueTown/ISP agent; thereby generating local employment opportunities.

BlueTown Connecting the Unconnected

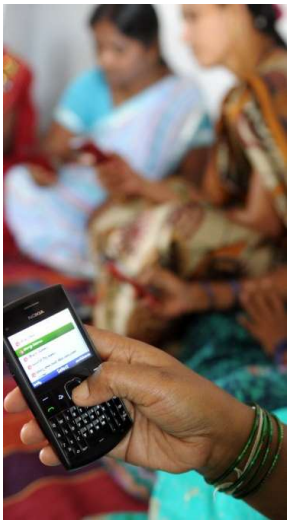
e-Services which can be delivered in Rural India using Wi-Fi Hotspot

- **Broadband Access (Internet)**
  - Data Transfer, e-mails
  - High Speed Internet access
  - Local content & Caching
  - Social Networks (Facebook, Whatsapp, Skype, Viber)
- **Government to Citizen Service (G2C)**
  - E-Health (video conferencing with Doctors, telemedicine, Training of doctors can be done remotely)
  - E-Education (audio visual content, Interaction based educational content, online library, E-Books)
  - E-Governance (various government services can be extended to the users, Government records, updates of government services)
- **Business to Citizen (B2C)**
  - Agriculture Information (like what seeds are best for what type of soil, what fertilizers can be used)
  - Weather forecast especially for the farmers (so that farmer can plan accordingly)
  - Entertainment (Online content can be made available, Youtube, Movies etc.)

BlueTown Connecting the Unconnected

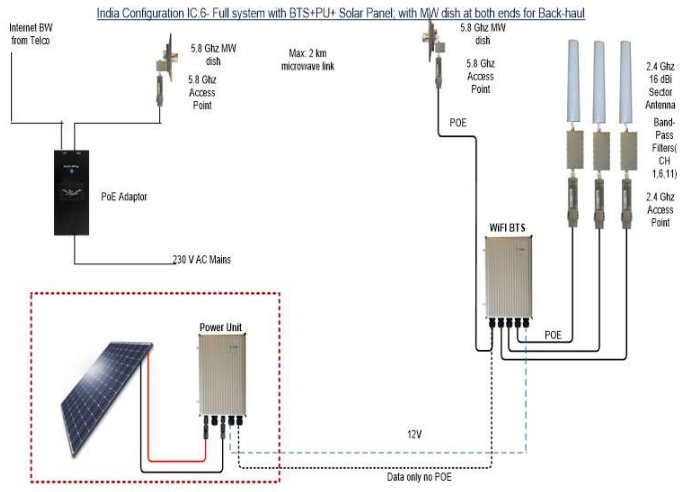
Broadband Dialtone- Telephony over Wi-Fi as last mile

- In some remote & rural villages (36,000) even the Telephony access (like 2G) is not available
- In case a public Wi-fi 'HotSpot' is created in a village, in addition to Broadband access it can also provide voice services as a Value-add/Apps (OTT)
- Last mile access on Wi-Fi can be used by NGN core to deliver IP based voice as a Fixed Mobile Convergence (FMC) through IP-PSTN Interconnect/Application also known as Unlicensed Mobile Access (UMA)
- This can make voice calls in rural areas very cost-effective(almost free) as it will use License-free Spectrum and the All-IP cost efficient infrastructure



BlueTown Connecting the Unconnected

Innovative Network Architecture for Rural Wi-Fi HotSpot



- Complete system with solar power supply and battery pack & Backhaul on 5 Ghz (Wi-Fi)
- For Population >2000
- 5 AP's, 3 Filters, 3 Antennae, 1 BTS, 1 Power Unit (including Solar Panel) , 2 MW Dish, 5 Meter mast
- Total One time CAPEX for this solution – INR 3.0 Lacs (USD 4.5K per setup (including installation & commissioning); based on local sourcing/manufecturing of majority of equipment from India and using existing infrastructure of Telcos

BlueTown Connecting the Unconnected

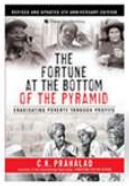
Using Multiplier effect of an idea whose time has come - Archimedes Principle

"Give me a rod (mast) long enough strong enough- and I will change the lives of the rural folks"

Another great Idea-Business case for Rural Connectivity

The Fortune at the Bottom of the Pyramid by C.K. Prahalad

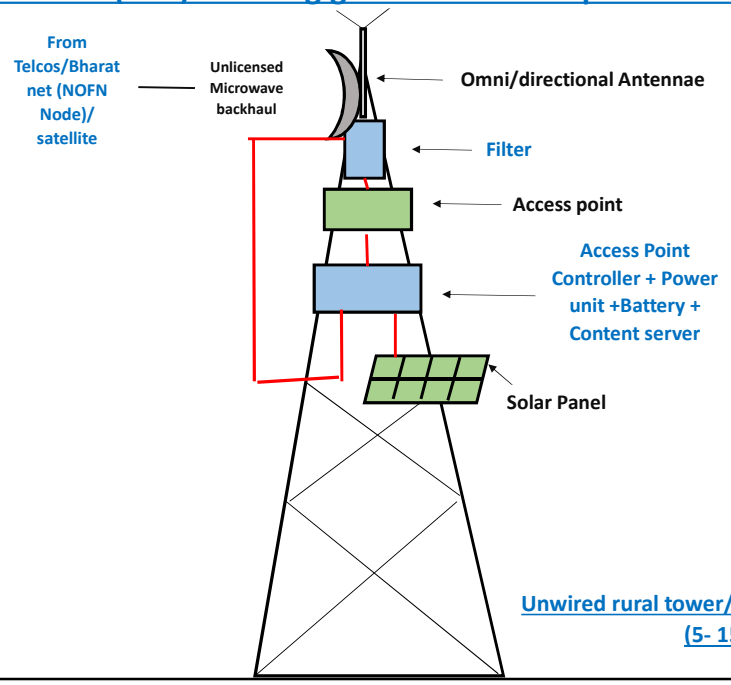
An idea can change the world...



THE FORTUNE AT THE BOTTOM OF THE PYRAMID
Revised and Updated Fifth Anniv. Edition

from C.K. PRAHALAD

Everything On Tower(EOT)-Creating green Public Hotspot on an unwired Rural Tower



Unwired rural tower/mast/pole/structure (5- 15m)

BlueTown Case study–Rural Hotspot-as-Managed Service

Highlights

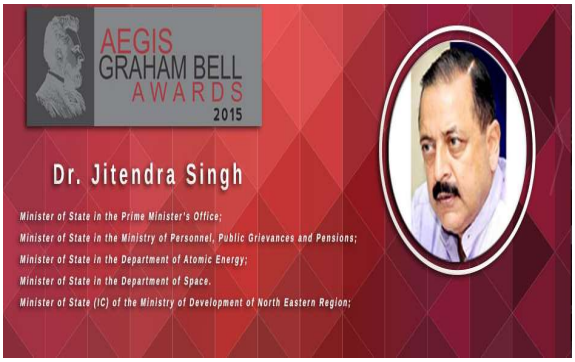
- 3 Trial Conducted in India at Arian, Dadiya & Tilonia (Barefoot College)
- These trials were conducted in association with BSNL & BBNL (NOFN)
- Range of Wi-Fi in Arian (at 25 Meter Height)- upto 1 Kms achieved
- Range of Wi-Fi in Dadiya (at 5 Meter Height)- 0.5 Kms achieved
- 3rd Site is for Captive use for Barefoot College, Tilonia
- The system could support up to 75 concurrent users
- Bandwidth capped at 1 Mbps and users could experience speeds of 1 Mbps on their smartphone/handheld devices
- A real, workable example of People-Panchayat-Public-Private Partnership and unlocking the potential of existing public Telco infrastructure

CMD BBNL experiencing a video session through Wi-Fi Hotspot from rural roadside

BlueTown Connecting the Unconnected

BLUETOWN Innovative Business Model-Recognition in India

BLUETOWN was awarded the ***Aegis Graham Bell*** Award for ***"Rural Broadband Access- Most Innovative Business Model"*** on 27th November 2015, New Delhi



www.bellaward.com

BLUETOWN Recognition in India (Cont.)

- BLUETOWN was awarded the SCTE award under the category *"Watch out 2016"* on 22nd January 2016 at the Convergence India 2016 event

Strategic Partnerships in India -TCIL

- MOU signed between BLUETOWN & TCIL (Telecommunications Consultants of India Limited)
- TCIL is a Govt. of India undertaking and have been providing Telecom consultancy & turnkey project execution services to various telecom operators, bulk users and others in India and 80 other countries.
- The objective of the MOU is to participate jointly in projects of common interest in India & abroad

Strategic Partnerships in India –ESSCI (NSDC)

- BLUETOWN have signed an MOU with ESSCI (Electronics Sector Skills Council of India) on 30th November 2015
- This MOU facilitates co-operation between ESSCI and BLUETOWN to train VLE(Village Level Entrepreneurs) by creating NOS (National Occupational Standard)

BLUETOWN in news in India

BLUETOWN was in news in India when the first POC deployments were done in Ajmer, Rajasthan, Telecom Secretary Mr. Rakesh Garg visited our site

टेलीकॉम सचिव ने जानी कार्यप्रणाली

आईटी सेंटरों का किया निरीक्षण

अरांई में वाई-फाई सेवा

निरीक्षण • टेलीकॉम सचिव ने किया दौरा

ऑनलाइन सर्विस की ली जानकारी

अरांई हुआ वाई-फाई

अजमेर ■ 26 अप्रैल, 2016 ■ संस्करण 3

दैनिक नवज्योति

तिलोनिया में वाई-फाई से मिलेगा ब्रॉडबैण्ड

BLUETOWN in news in India (Cont…)

- BLUETOWN sites in rural Ajmer was visited by Mr. N Sivasailam (Add. Secy. Telecom/CMD BBNL) and he experienced the BLUETOWN wi-fi himself on his smartphone

इंटरनेट स्पीड जांची, लिया फीडबैक

दूरसंचार विभाग के अतिरिक्त सचिव ने किया निरीक्षण

राजस्थान पत्रिका

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बीएसएनएल के अतिरिक्त सचिव ने किया निरीक्षण

अजमेर, सोमवार 15 फरवरी, 2016 10

दूरसंचार विभाग के अतिरिक्त सचिव ने किया निरीक्षण

डीकेसी का किया निरीक्षण

BLUETOWN in news in India (Cont…)

Datawind, Bluetown show interest to set-up VNO biz in India

By PTI | 1 Apr, 2016, 07.55PM IST

Post a Comment

READ MORE ON » VNO | Suneet Singh Tuli | Datawind | BSNL | BlueTown

NEW DELHI: Aakash tablet maker Datawind and Denmark's Bluetown are interested in offering telecom services as virtual network operators (VNOs) and will apply for the licence once the government notifies new rules.

While Canada's Datawind is planning pan-India operations, Bluetown through an Indian arm will look at Bihar, Jharkhand, North East, Haryana and Rajasthan.

"As per reports, government will put VNO licence in place within a month. We will apply for a pan-India permit and expect to start operation within six months," Datawind President and CEO Suneet Singh Tuli said.

Inter-ministerial panel Telecom Commission earlier this week had paved the way for VNOs, who will be providing telecom services in partnership with a local operator. VNOs will lease bandwidth from operators to sell voice and data services to customers, like a retailer, under its own brand name.

ET SPECIAL: Love visual aspect of news? Enjoy this exclusive slideshows treat

VNOs will also be able to provide own billing plans and are expected to push tariff war in the market.

"As per reports, government will put VNO licence in place within a month. We will apply for a pan-India permit and expect to start operation within six months," Datawind President and CEO Suneet Singh Tuli said.

He said Datawind has already operated as VNO in the UK, Germany and Australia during 2007-11.

"We are rolling out wi-fi and broadband projects in partnership with BSNL. VNO opens an opportunity for us to decide on our own tariff. Our focus is on rural broadband. With VNO we will providing calling service in over-the-top format.

"We will look at VNO permit in Bihar, Jharkhand, North East, Rajasthan and Haryana to begin with in partnership with companies like BSNL," Bluetown Country Managing Director Satya N Gupta said.

The VNO, however, will not be allowed to set-up equipments to directly connect network of other network or a non-partner. They will be dependent on their partner for connecting with various networks.

time such business model was not allowed.

VNO players are expected to reduce marketing and sales costs of telecom companies struggling in the sector, besides sharing some operational expenses too.

Both the companies are looking at partnering BSNL. When contacted, BSNL Chairman and Managing Director Anupam Shrivastava said it is a huge opportunity for the state-run firm and VNOs can help in selling telecom services.

"We have huge bandwidth resources. BSNL can supply in bulk. We only lack in marketing and servicing customers where VNOs can help us," Shrivastava added.

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BLUETOWN(India) in Danish Media

THE DANISH IT COMPANY BLUETOWN HAS LANDED A MILLION ORDER TO CONNECT THE CITIZENS OF INDIA'S RURAL AREAS. CEO PETER IB EXPECTS A TURNOVER OF DKK ONE BILLION IN THE COMING YEARS.

Summary from Berlingske Tidende (danish media)

12.500 solar-powered Wi-Fi hotspots in Indian villages within the coming 3 years. This is the result of the million order that BLUETOWN in cooperation with partner company Goip has successfully settled with the state-owned Indian telecommunications company BNSL.

"*We have to raise the capital and thereby grow the business in cooperation with BNSL. The potential for success is huge. For a relatively young company, this order is a scoop*", says Peter Ib, CEO of BLUETOWN.

BLUETOWN has its headquarter in Copenhagen and offices all around the world, counting Tanzania, India, San Francisco, Peru, Ghana and Dubai with a total of 65 employees.

With the new agreement, Peter Ib expects a turnover of a couple of DKK hundred million at the Indian market. The objective is to utilize the agreement to its fullest extent and thereby obtain a DKK 500 million turnover. This requires BLUETOWN to obtain a capital injection of approximately DKK 100 million. In 2016, 500 hotspots will be established in secluded Indian villages and in the course of three years, the number will count 12.500 hotspots. Within the next five years, the ambition is 25.000 hotspots all around India.

BLUETOWN (India) in Danish Media (Cont…)

"The telecommunications industry is a huge, global market with high revenue. We expect a turnover of DKK one billion in 2018 or 2019. It's a risky and unknown terrain, but we have succeeded in ways that people didn't imagine to be possible – for example with the order in India", says Peter Ib.

Connecting the unconnected in the world's poorest areas

Since 2012, BLUETOWN has invested DKK 50 million in the development of Wi-Fi hotspots to developing countries. Some may regard BLUETOWN as philanthropy, but this is not the case according to Peter Ib. BLUETOWN operates as a profitable business with focus on innovation, sustainability and improvement of the information flow in poor, rural areas.

"The timing is perfect. The market is changing and the traditional telecommunications industry based on GSM is being outpaced by cheaper, lightweight technologies suitable for these areas", states Peter Ib.

The Indian order means that BLUETOWN's Indian country office will be expanded from six to twenty employees. It was the Indian country manager, Satya. N. Gupta, who made BLUETOWN aware of the growth potential of the Indian market a few years ago.

"The Indian Premier Minister Nerendra Modi had begun the execution of the reform program 'Digital India', which among other things encompasses internet assess to 650.000 villages", says Satya N. Gupa.

In cooperation with Satya N. Gupa and Goip, BLUETOWN is taking the lead in the development and improvement of the Indian IT infrastructure.

Make in India-A Great Opportunity to create Jobs

- More than half of modules used in rural broadband access solution are off- the-shelf available in India
- Most of the modules can be sourced from India itself and rest can be manufactured locally through Small and Medium Enterprises (MSMEs).
- The modules which are already being manufactured locally are omni-directional and sector antennae, filters, outdoor cabinet, power control and converter unit, solar panels, connectors and cables, Mast and Li-ion Batteries.
- The BTS (AP Controller) is the only specialized module in the solution which can also be easily manufactured in India as the volumes grow
- There are discussions with various Vendors/Manufacturers (including BSNL, ITI, TCIL, MSMEs) to have the BTS also manufactured/ Co-create in India
- 100% of the rural setup could be sourced from India within a year thereby creating a demand for around 2 Billion USD worth of local equipment during next 5 years

BlueTown Connecting the Unconnected

Rural Hotspots–Scale and Scope for "Make in India"

Project Projections - Next 5 years (2B USD Opportunity)

	Nos.	UNIT Capex(INR)	UNIT Material Cost (INR)	UNIT Labor Cost (INR)	Work Man-Days @ Rs 250/day
Gram Panchayat (GPs)	2.5 lakhs	3.0 lakhs	2.5 lakhs	0.5 lakhs	5 Crore Mandays
Village	4.0 lakhs	2.0 lakhs	1.5 lakhs	0.5 lakhs	8 Crore Mandays
TOTAL	6.5 lakhs	15,500 Cr.	12,250 Cr.	3,250 Cr.	13 Crore Mandays

	Total Capex (INR)	Material Total Cost(INR)	Locally Manufactured (80%)
Total for GPs	7,500 Cr.	6,250 Cr	5,000 Cr.
Total for Villages	8,000 Cr.	6,000 Cr	4,800 Cr.
GRAND TOTAL	15,500 Cr.	12,250 Cr.	9,800 Cr.

"Job Factory"- Realty Check of Job Challenge in India

- Presently Indian economy is creating only 5.5 Mn jobs a year, less than half of incremental addition to unemployed educated youth
- India to have skilled workforce of 500 Million by 2022 with 13 millions youth entering the job market every year (Skill India Mission, Assocham)
- At the current rate of growth (@7.5%) there will be acute shortage of Jobs even for skilled/employable youth
- Therefore need for creation of Entrepreneurs by multi-skilling and empowering/funding the youth at grass-root level to make them "Job-creating/giving" instead of "Job-seeking"

Some more numbers (for Rural India)

- On average every Gram Panchayat covers 3 Villages
- Under NOFN project 2.5 Lakh Gram Panchayat's to be connected with Optical Fibre (100MBPS)
- There is need to convert all the Gram Panchayats and villages into Public Hot-Spots for hand-delivery of Broadband services to rural masses
- For 6.5 Lakh villages to be covered around 10 lakhs Wi-Fi Hot-Spots required
- Depending on the size of the village VLE*/Micro-Operators to be appointed to manage the Hot-Spot setup to provide Broadband access in a village
- With around 1 Mn (10 Lakhs) VLE/Micro-Operator (Blue Collared Rural Broadband Champions) whole of our hinderland (Bharat) can be served with Broadband services

*(*VLE- Village Level Entrepreneur)*

Skillset Required for Rural Broadband Enterprenuer (VLE)

Skillset	Scope	Activities
TECHNICAL SKILLS	Responsible for last mile Operations and Maintenance of Electronics, electrical equipment and their inter connectivity	**Electronics Skill**:- Installation, Commissioning & Maintenance of electronics equipment : Operational Knowledge of Wi-fi, Networking,Level 1 (L1) support. **Electrical Skill:-** Installation, Commissioning & Maintenance of electrical equipment such as Power Interface Unit, Battery Bank, Solar Panel etc. **Computer Skill:-** Computer/ Laptop operations, Knowledge of Smartphone, Internet, Knowledge of application software and Hardware. **Connectivity :-** OFC, GPON Connectivity - Level L1 support, Tower, Antenna, Cabling, Connectors, Hardware (Passive & Active) Connectivity.
OGANISATIONAL SKILLS	"Organisation Skills is concerned with the study of what people do in an organisation and how that Skill affects the performance of the organisation."	• Following organization guidelines, processes & procedures. • Facility Management skills. • Liaison with Gram Panchayat, Sarpanch and other Village Head. Security of the Installations/site. • Basic knowledge of accounts. •Maintenance of Records (Health, Technical)

Skillset Required for VLE (contd.)

Skillset	Scope	Activities
SOFT SKILLS	Soft Skills involves several elements which differentiate them from all the other forms of communications.	Understanding of customer requirements. Customer Handling. Correspondence and Relationship with customer, customer care and complaint handling. Customer satisfaction
ENTREPREUNERSHIP SKILLS	Understanding of business skills. By utilization of innovative ideas must be able to generate profit. Further enhancing the business by provisioning of various services.	• Entrepreneurship skills, selling skills, Services provisioning and Providing, Prepaid Charging plans. • Knowledge of products and servicing. Should be capable of running the Hot-Spot as profit centre.

Action Plan to Create Rural Broadband Enterprenuers

- NSDC (National Skill Development Corporation) a Govt. of India Initiative was launched in Oct 2009
- NSDC has a mandate to skill 150 Mn resources by 2022; and is currently working in 366 districts (27 states & 5 UT's)
- NSDC provides strategic support and funding to partners
- ESSCI (Electronic Sector Skill Council), TSSC (Telecom) and IT-ITES Skill Sector Council under " Skill India" mission of Govt.,in addition NIELIT of DEITY are also engaged in developing multi-skills in ICT domain.
- These are created to ensure adequate availability of multi-skilled manpower to boost growth and productivity in the Electronics, IT and Telecom Sector
- BlueTown is tieing up with these kind of institutions and many others in Govt. like CSC 2.0 and Private sector and NGOs(eg. Barefoot College,Tilonia) engaged in Rural development as well as various Start-ups and Enterprenuers funding agencies of Govt. like MUDRA, SIDBI Venture, Ministry of Skill Development and Enterprenuership to create the skilled Entrepreneurs as Champions for Rural Broadband

Way Forward

- ❑ Deploy more and more Managed Hot-spots in Rural areas on Managed Service (Revenue-Share) as well as Capex/ Funded basis by using existing infrastructure to provide carrier grade public Broadband access.
- ❑ Provide VGF (Viability Gap Funding) for rural access network in line with National Backbone Network (NOFN) and mobile telephony in NE/LWE areas as well as Funding of rural micro Enterprenuers.
- ❑ Involve local bodies (GPs, Municipalities) as stakeholders.
- ❑ Facilitate " Make in India" of Wi-Fi Access Point Controllers, Lithium-ion battery packs and other modules.
- ❑ Create a Social Enterprise for " DigiGaon-Job Factory"
- ❑ Let us "Make It Happen" together (USOF, PSUs, Industry, Local Bodies)
- ❑ Move Extra Mile- PPPPP(5Ps)- People, Panchayat, Public (Govt.),Private(Industry) Partnership

Next Step- "Mission"

- **Establishment of a "Social Enterprise" at national level consisting of like-minded social entrepreneurs supported by the related agencies of Central , State Govt., PSUs, Corporates, MSMEs, Skill Development agencies and rural development NGOs with a single point Mission to enable "Delivery of Urban Broadband speeds in Rural" in a cost effective, timely and sustainable manner and creating at least "One Job Per Village".**

DIGIGAON JOB FACTORY
Creating Livelihood

"DigiGaon-Job Factory"

An NGNguru "5P" Initiative for Social Enterprize inspired by Prof. Yunus "Grameen", Dr. Kalam's "PURA", Prof. Prahalad "BOP" Vision & Govt. "RURBAN" Mission

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