

National Broadband Plan: Strategies, design and implementation



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1. Govt. of India has approved on 25-10-2011 the setting up of National Optical Fiber Network (NOFN) to provide connectivity to all the 2,50,000 Gram Panchayats(GPs) in the country. This would ensure broadband connectivity with adequate bandwidth. This is to be achieved utilizing the existing optical fiber and extending it to the Gram Panchayats
2. BBNL is a Special Purpose Vehicle (SPV), set up by the Government of India for the Establishment, Management and Operation of NOFN (National Optic Fibre Network) as Infrastructure for Broadband services in rural India.

NOFN/ BharatNet

- The project was approved by Cabinet on 25.10.2011 as a Centre-State joint effort . Govt. of India to fund the project through the Universal Service Obligation Fund (USOF).
- Minimum 100 Mbps bandwidth at each Gram Panchayat.
- Highly scalable network infrastructure accessible on a non-discriminatory basis, to provide on demand affordable broadband connectivity to rural masses & institutions, to realise the vision of Digital India.

INDIA

Population	1.28 Billion (17.31% of world's population)
Below 25 years	50%
Below 35 years	65%
Rural Areas	72.2% (6,40,000 Villages)
Urban Areas	27.8% (5,500 Towns & Urban Agglomerations)
Active Internet Users	18% (232 Million)
Active Rural Internet Users	5.4% (69 Million)
Smartphone Users (Age 31-40)	10% in 2013 to 30% in 2015
Projected Population (2030)	1.53 Billion



Area (Sq Kms)	32,87,263
States + UTs	29 + 7
Districts	651
Blocks	6612
Village Panchayats	2,65,000
Villages	6,40,930



Source:
Ministry of
Rural
Development,
GOI

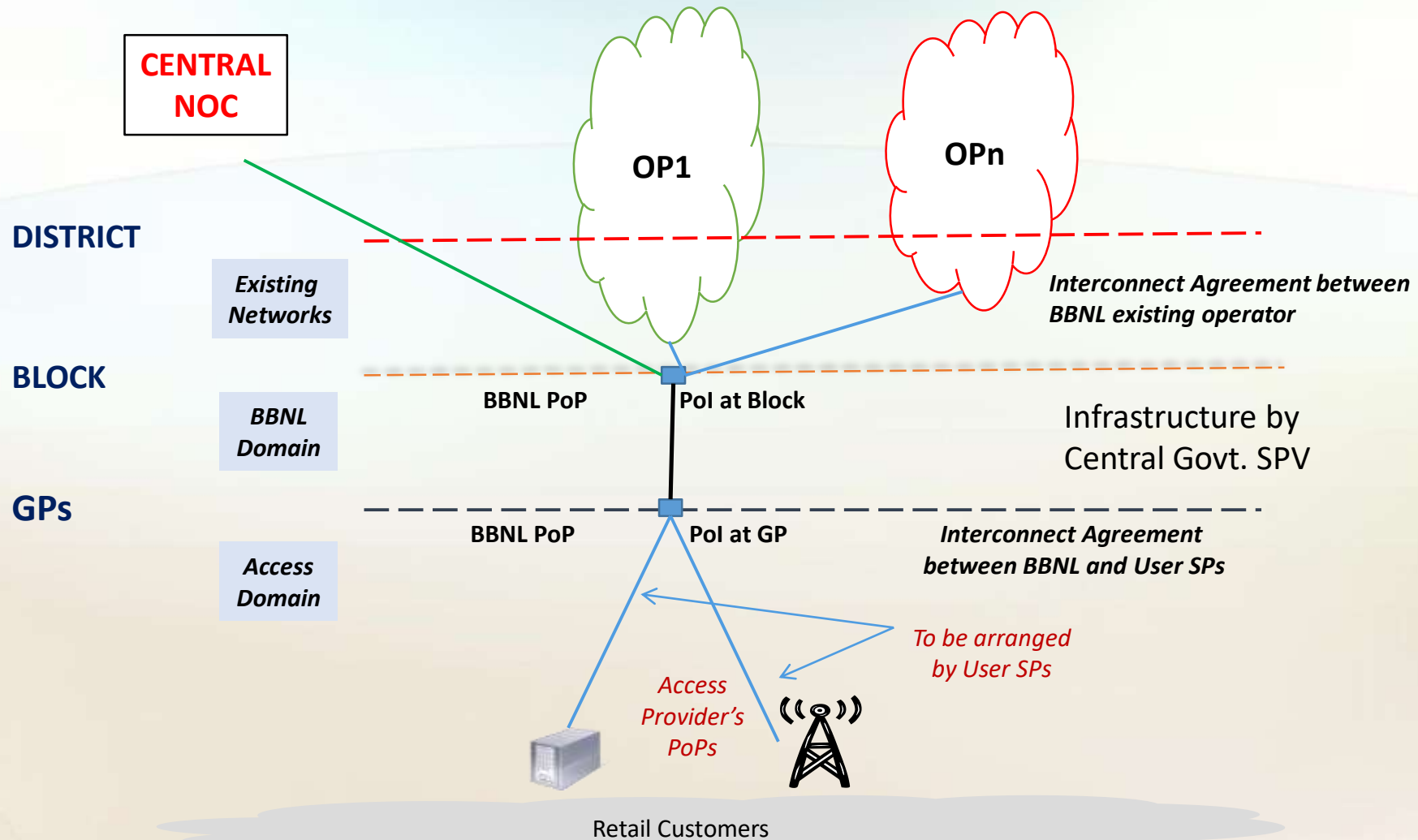
Strategy of BharatNet

□ IMPLEMENTATION IN THREE PHASES

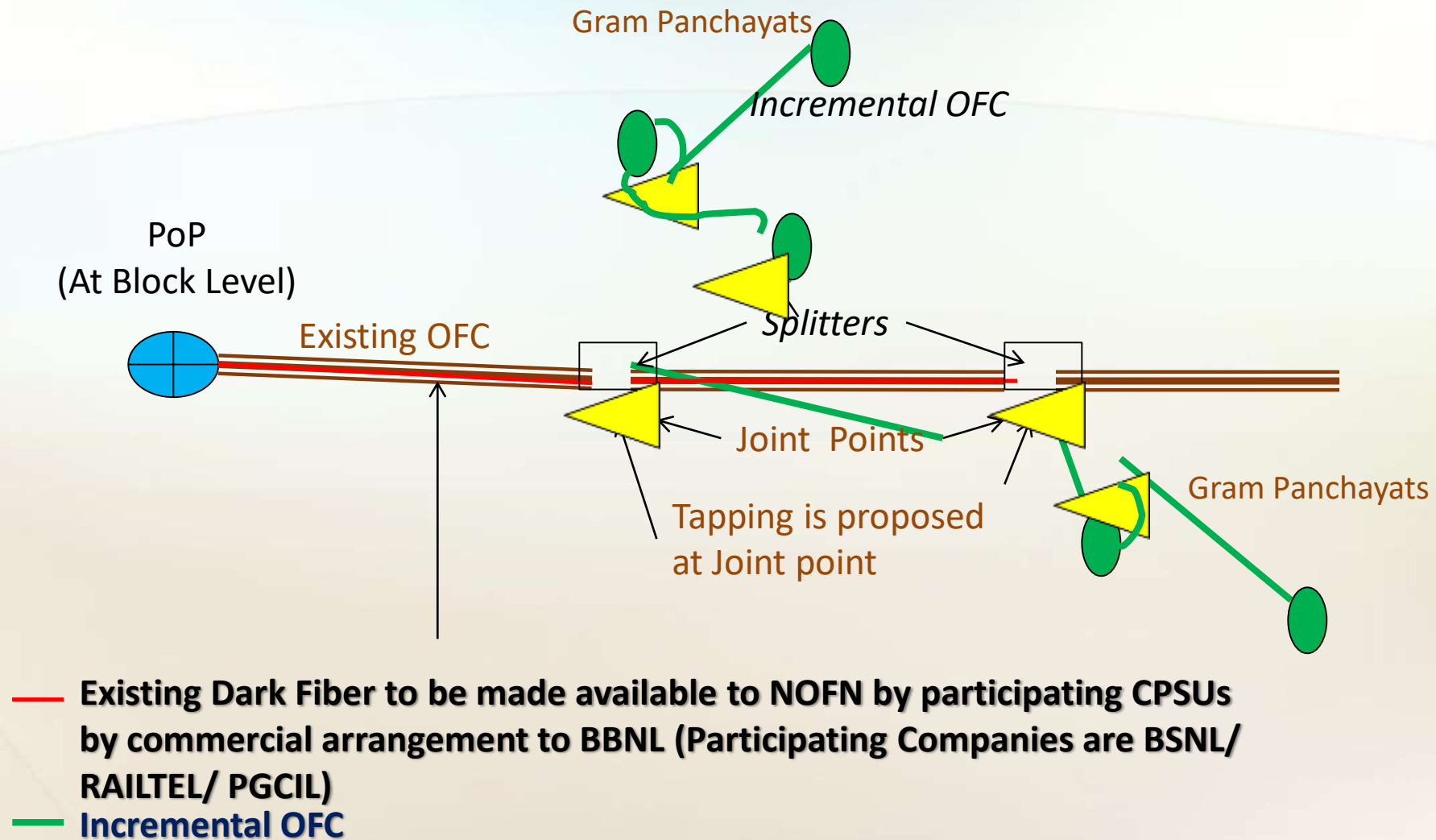
Phase I	(1,00,000 GPs) under implementation to be completed by October, 2017
Phase II	(Balance 1,50,000 GPs) to be connected by December, 2018
Phase III	Future proofing of the Network to meet the requirements of Internet of Things (IoT) and 5G services era, to be completed by 2023

- Phase-I implementation by 3 CPSUs (BSNL, RailTel & PGCIL).
- Laying of Underground Optical Fibre Cable, GPON Technology, Use of Existing fiber of BSNL and RailTel, Free RoW by States.

Current Architecture: End to End network



Concept: Making available Dark Fibers by participating CPSUs



BharatNet Phase-I Status

CPSUs	Phase 1 Scope	Pipe Laid	OFC Laid	Pipe Laid	OFC Laid	E2E Tested	GPs LIT
	GPs	Kms	Kms	GPs	GPs	GPs	GPs
BSNL	101684	201285	189675	91452	86484	67972	25552
RailTel	12791	19149	15059	8280	6661	3691	1649
PGCIL	10515	21208	18466	7879	7393	4775	1758
Total	124990	241642	223200	107611	100538	76438	28959

Present Strategy of BharatNet

- ❑ Connectivity to GPs by optimal mix of media.
 - Underground OFC
 - Aerial OFC
 - Radio
 - Satellite
- ❑ Last mile architecture (Wi-Fi) to be set up at GP level through Viability Gap Funding (VGF) in PPP model for accessing the network by citizens.
 - Data PCO in all GPs (Pilots by CSC, BSNL, RailTel and IIT Bombay underway) – Wi-Fi.
- ❑ Horizontal connectivity to Government Institutions at GP level to be funded by States etc.
- ❑ States / Private Sector / CPSUs to implement the Project.

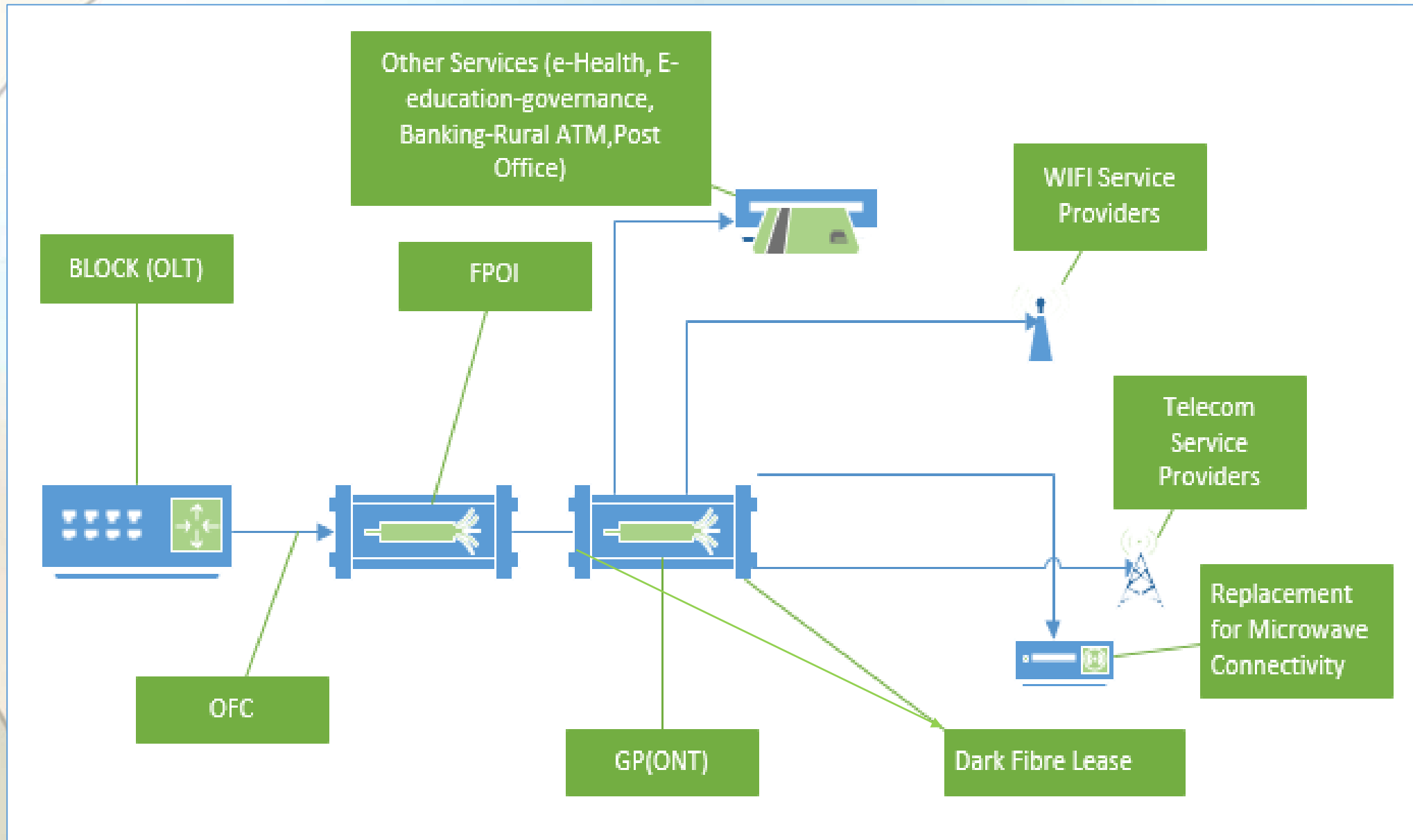
Phase-II: State Led Model/ Private Model

- State Model of Implementation has been approved by Telecom Commission.
 - Proposal to be provided by the State with Detailed Project Report (DPR) .
 - State plans could also include the provision of last mile connectivity.
 - The State Governments will select the Implementation/Execution agency.
- Network would remain a National Asset. Operation and Maintenance could be taken up by the States.
- Award of work on Engineering, Procurement and Construction (EPC) basis for executing the entire project in a State including last mile connectivity and service delivery or part of the project.
- Network management, operations and monitoring through a centralized Network Operation Centre (NOC) under BBNL.

Key differences between phase-I and phase-II

Sr.	Item	Phase I	Phase II
1.	No. of GPs	1,00,000 (work front increased to 1,25,000 GPs by TC on 30.04.2017)	1,50,000
2.	Implementing Agencies	Three CPSUs	BBNL, States and States' agencies, CPSUs and Private Sector
3.	Media	Underground OFC	Underground OFC, Aerial OFC on existing electricity poles and Radio & Satellite
4.	Fibre connectivity	From FPOI to GP	Fresh OFC from Block to GP
5.	No. of Fibre	24	48 & above (Underground), 24 & above (Aerial)
6.	Last Mile Architecture	Yes (Last Mile Architecture at all the GPs, including Phase I GPs is proposed)	Yes, for all 2.5 lakh GPs. Wi-Fi hotspots for GPs
7.	Horizontal connectivity to GP Institutions	No	Yes. Funding to be provided by respective States and/ or Government Departments
8.	Management and Utilization Responsibility	BBNL	Implementation Agency

Who can lease the bandwidth from BBNL?



Stakeholders of BharatNet

Government Stakeholders

- BBNL
- BSNL
- CSC - SPV
- Banks & Post Offices
- School/College/ITI/ Skill Development Centers
- Weather Department
- Forest Department
- Health Department
- Rural Development
- Agriculture Department
- NHAI, PWD etc...

Private Stakeholders

- TSP
- ISP
- LCO
- MSO
- School/College
- Private Banks
- Enterprise Customers
- Other Private Customers

Government initiatives which can be benefitted from NOFN Infrastructure

1. **State Wide Area Network** : Connects all State/UT Headquarters up to the Block level via District/ sub-Divisional headquarters. NOFN infrastructure can be used to extend the SWAN network till GP level
2. **National eHealth Services**: NOFN infrastructure can be used to extend the NeHA (National eHealth Association) to rural areas and expand it to PAN India GP level.
3. **National Skill Development Scheme** : To cater the skill imbalance exists in rural vs urban areas.
4. **e-Education services** : Initiative under Digital India program aim to provide education in far-flung areas where it may not be possible for teachers to be present in person.

To make the project successful, an ecosystem needs to be created which consists of customers (Government bodies , End users etc.), Service Providers (TSP's , ISP's etc.) and the enabler i.e BBNL (BharatNet infrastructure)



*Thank
You*