DIGITAL INDIA

OPTICAL FIBER IS THE KEY

AGENDA

1 GROWTH STORY

2 FIBERIZATION STATUS

3 DRIVERS & OPPORTUNITIES

4 HURDLES

5 PRATAP –
BRIDGING THE GAP

WHO WE ARE?

CORSIS

OPTICAL FIBER CABLE MANUFACTURING

- Manufacturing Plant- Optical Fiber Cable (OFC) Ranging of 2F to 288F
- Capacity- 3 Million FKM/Year
- Over 1,50,000 KMs Supply Completed
- Capability- Tube, Ribbon, Spiral & RF OFC cables & Patch chords, Pig tails etc.

BECKHAUL TECHNOLOGIES

TELECOM E.P.C.

- TOTAL SOLUTION PROVIDER - OPTICAL FIBER INFRASTRUCTURE
- Focused on OFC Project Roll outs - NLD, Intracity, FTTX & Last Mile Connectivity.
- Order Book - > 14500 KM's

PRATAP TECHNOCRATS

MANAGED SERVICE OPERATIONS

- Focused on Managed Services (O&M) of Telecom Network
- END to END Network Maintenance
- Presence in 28 Telecom Circles
- 35+ Clients , 16K + Skilled Manpower , Inhouse Training Center

INDIA TELECOM GROWTH STORY ..!!!

1

India is the largest data consumer globally surpassing China, USA and Japan

#2

1178.41 million SECOND-LARGEST SUBSCRIBER BASE

#2

658 million SECOND-HIGHEST NUMBER OF INTERNET USERS

#2

Smartphone market globally , 124 million shipment in 2017 , 14% YoY Growth

14.1 GB

India data traffic per active smartphone (GB per month)

88.17%

Tele-density increased from 18.23% in FY16 to 88.17% in FY21

49% CAGR

Mobile data traffic growth 7x from 2016 to 2021

159,201 years

Or 84 billion minutes of video content is crossing each month by 2021

6.5 EB

IP traffic to grow 4x by 2021 CAGR 30% (2016-21) 1.7 EB in 2016

2.8 Million OFC Km

BSNL – 0.8 Million
JIO – 0.35 Million
Airtel – 0.25 Million
BBNL – 0.55 Millions

0.7 Millions Towers

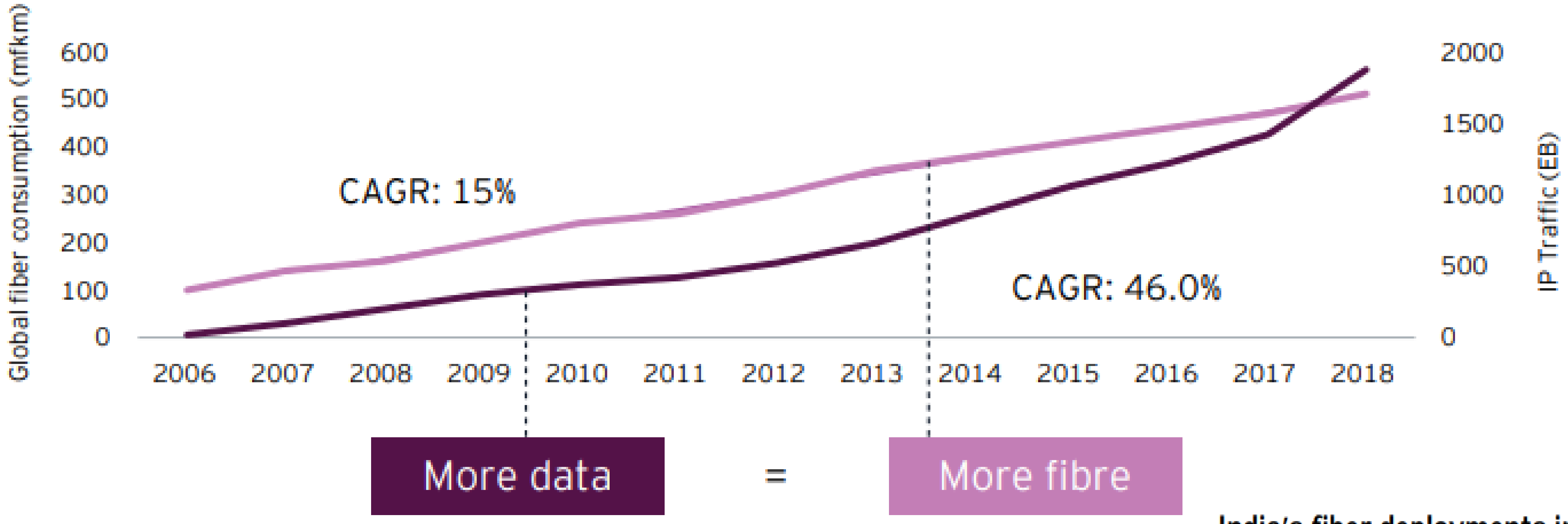
0.8 Millions additions by 2024F taking it to 1.5 Millions Towers

132.5GB

Average internet traffic per month generated by a FTTx Internet household in 2021;

INDIA TELECOM GROWTH STORY ..!!!

MORE FIBER = MORE DATA

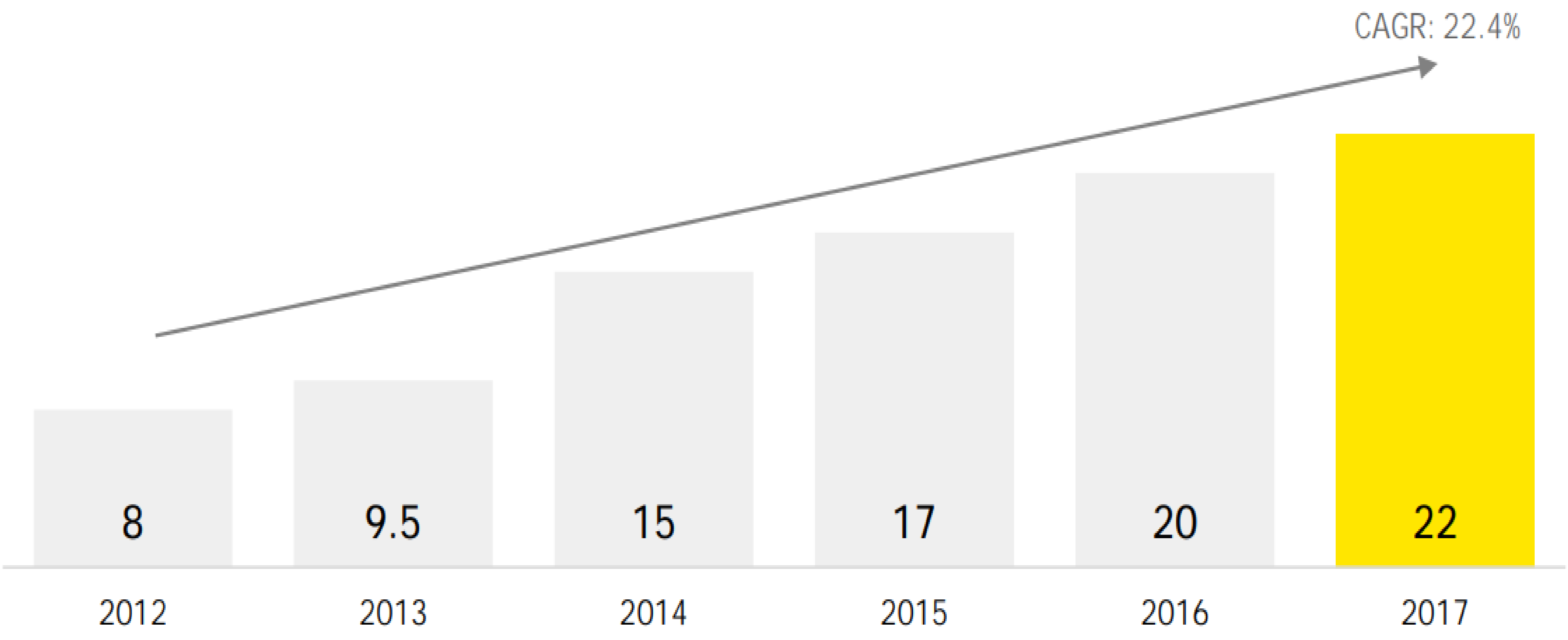


The bandwidth requirements of the high definition content and data heavy applications, the need for fiber will increase exponentially.

In 2021 - 33 EB Internet Usage and expected to reach 144 EB by 2024

HUGE OPPORTUNITY FOR FIBER ROLLOUT

India's fiber deployments indicating a steady rise, million fibre km

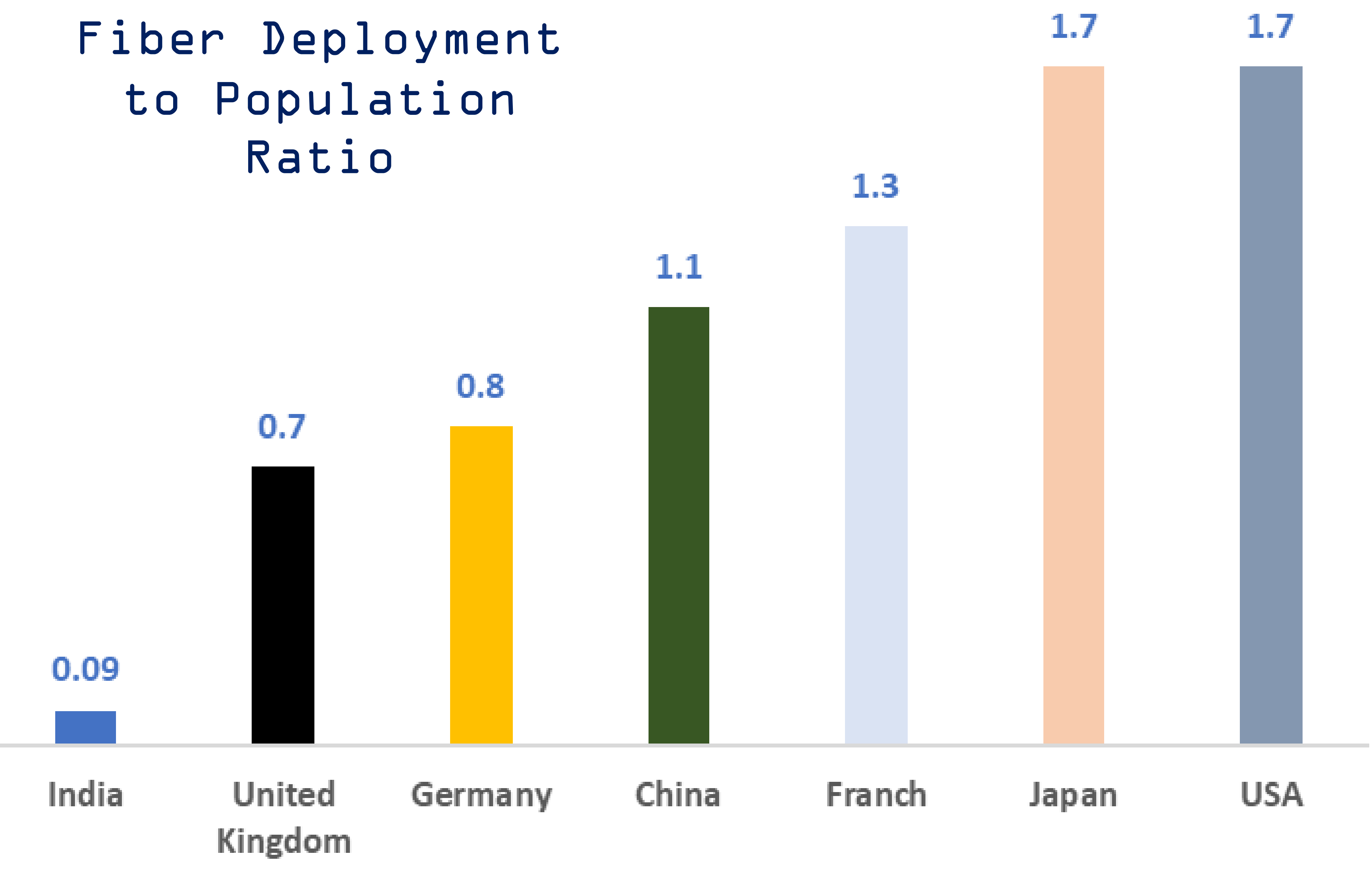


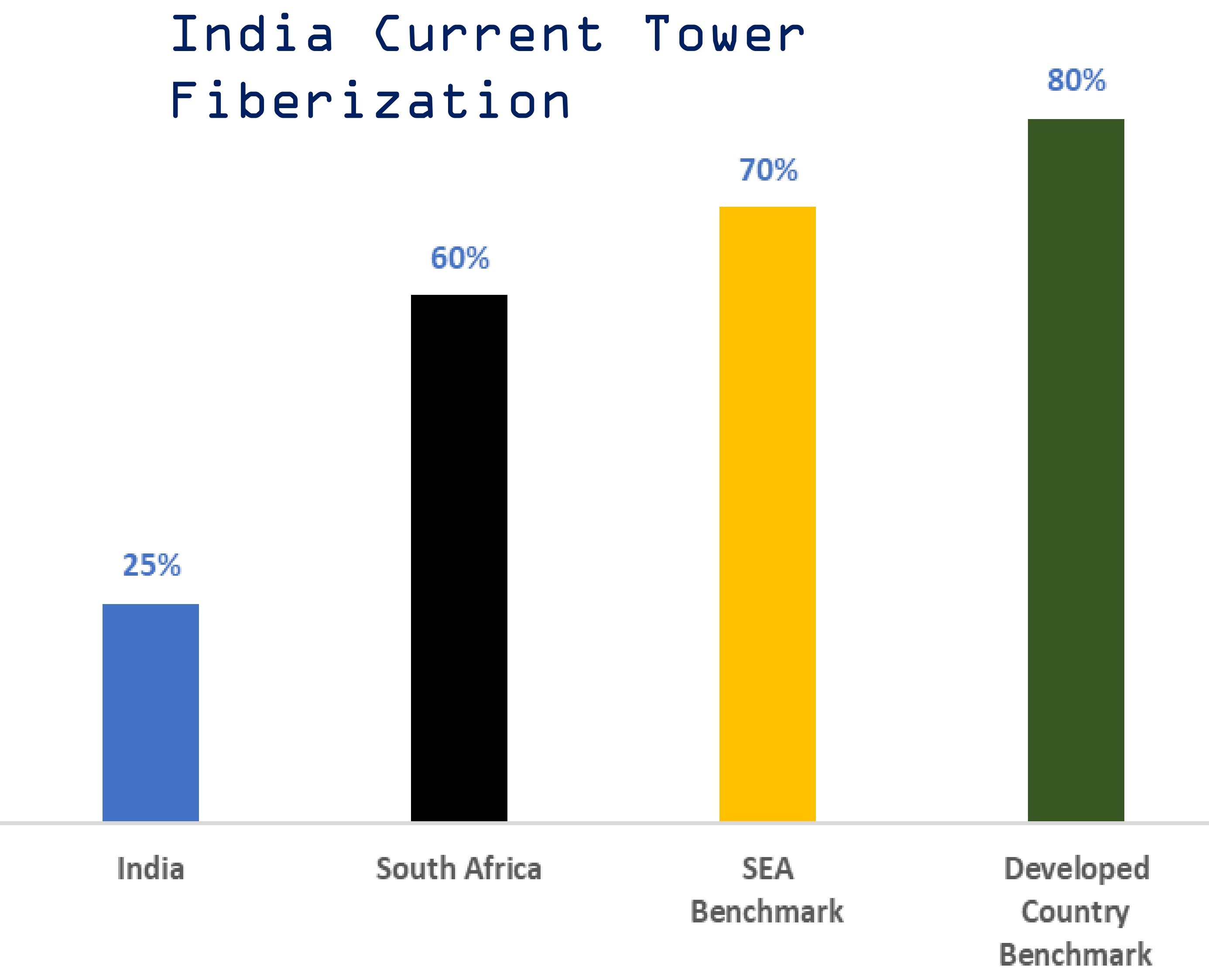
Quality of Network is as good as Backhaul Network

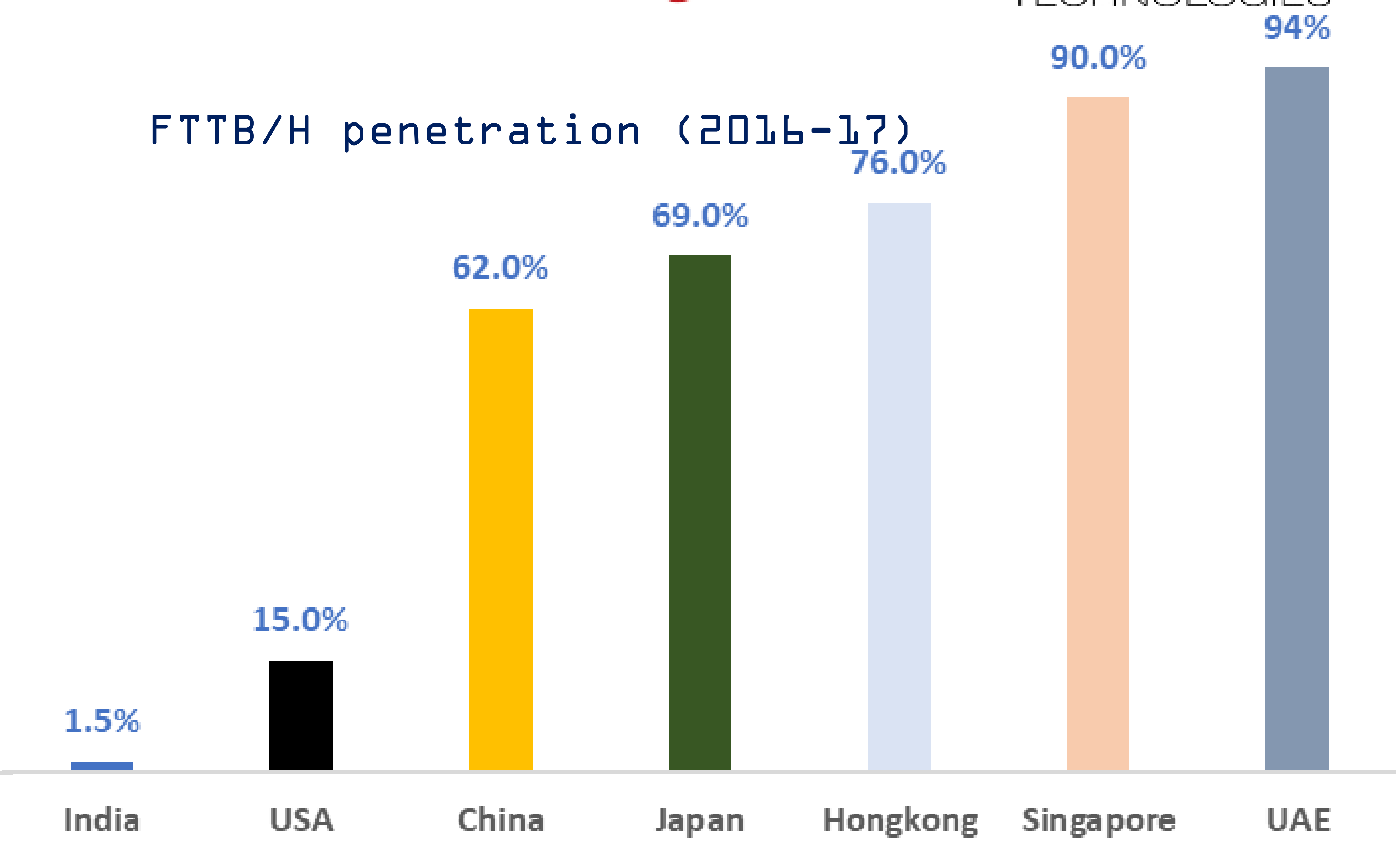
Microwave will become less relevant

OPTICAL FIBER IS THE KEY

FIBERIZATION STATUS







India's per capita fibre coverage is around 0.09 km, China's at 1.1 km and US and Japan is more than 1.7 km.

Tower Fiberization In India, 20%- 25% of telecom towers carry fiber optics; the average in the US, China and Korea is 65%-80%.

Capex fpr Fiberizing 70% of the towers will require an estimated 600,000 fKm; at an investment of US$8b

Lack of internet experience with low average mobile broadband speed of 8.8Mbps; China has 31.2Mbps, while Norway has 62.6 Mbps

Fixed Broadband constitutes only 5% of India's broadband market , FTTH/B is limited with only 1.5% penetration; behind Singapore 90% and UAE 94%

5G subscriber consumes 3x data vs an average 4G data subscriber, Global 5G deployment started in Apr-2019, while India is yet to deploy 5G.

6 years after 4G commercial launch, ~73% population has 4G coverage against 93% of 2G

One of the Highest ROW Charges for Telecom Network Deployment with multiple agencies in play.

GROWTH DRIVERS FOR OFC

1 To enable Mobile Broadband (4G & 5G) *(tower connectivity)*	MicroWave Backhaul as Bottleneck (max 150Mbps but limited to 50Mbps on ring topology)	>479 million 4G subs in India by 2022 (-25.6% CAGR 2017-22)	5G Expected in India by 2022 (Fiber backhaul required for low latency applications)	
2 To enable ICT apps *(enterprise connectivity)*	Cloud Services (Ent. & Govt. apps to migrate on the cloud over next 5y)	Datacentre (Indian Datacentre market to be – US$ 7 billionn by 2020)	Start-up Ecosystem (Potential to host – 10,500 start-ups by 2020)	
3 To enable connected homes *(Residential Connectivity)*	High definition Video (VoD, Play TV)	Convergence with mobile (MNOs to massively invest in Home Broadband services)	Innovative Connected Home apps. (Smart Home, Security, eHealth, eEducation etc.)	
4 To enable Smart City Initiatives *(Public Connectivity)*	E-Government Services	E-Education Services	E-Health Services	Smart Transport Services

FIBERIZATION OPPURTUNITY !!!!

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TOWER FIBERIZATION

~1 GBPS is Current capacity per tower site , With 5G Capacity needed will be 10-20 Gbps.

5G would necessitate 100% tower Fiberization.

BACKHAULING SMALL CELLs

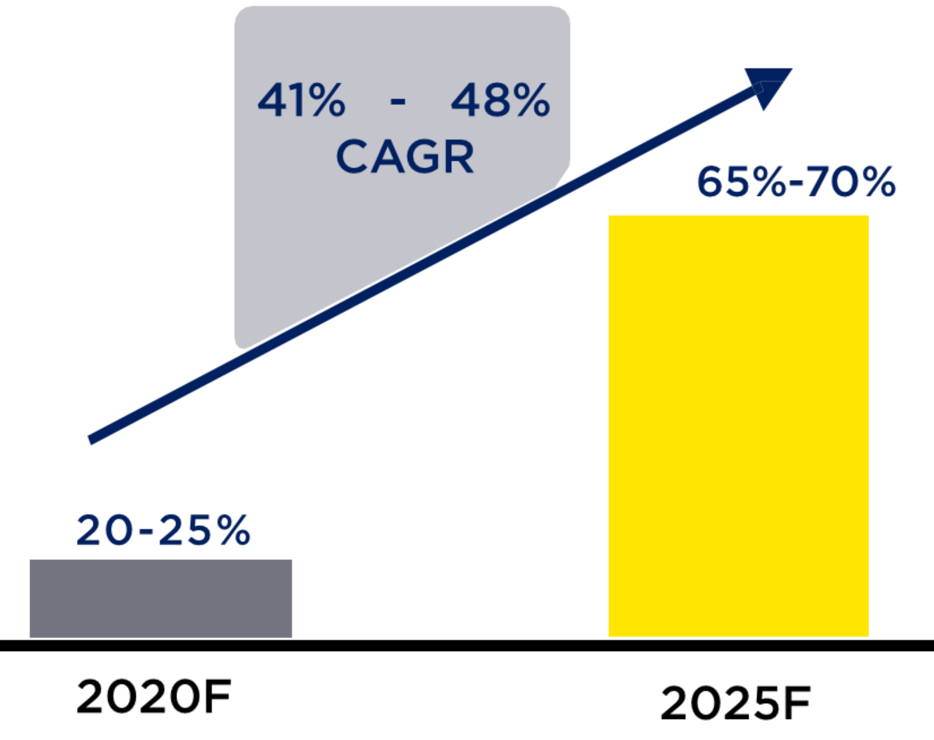
With 5G Rollout , Each Tower will be associated with 10-15 Small Cell for Coverage and Bandwidth

100% Small Cell to be Fiberized for bandwidth for 5G

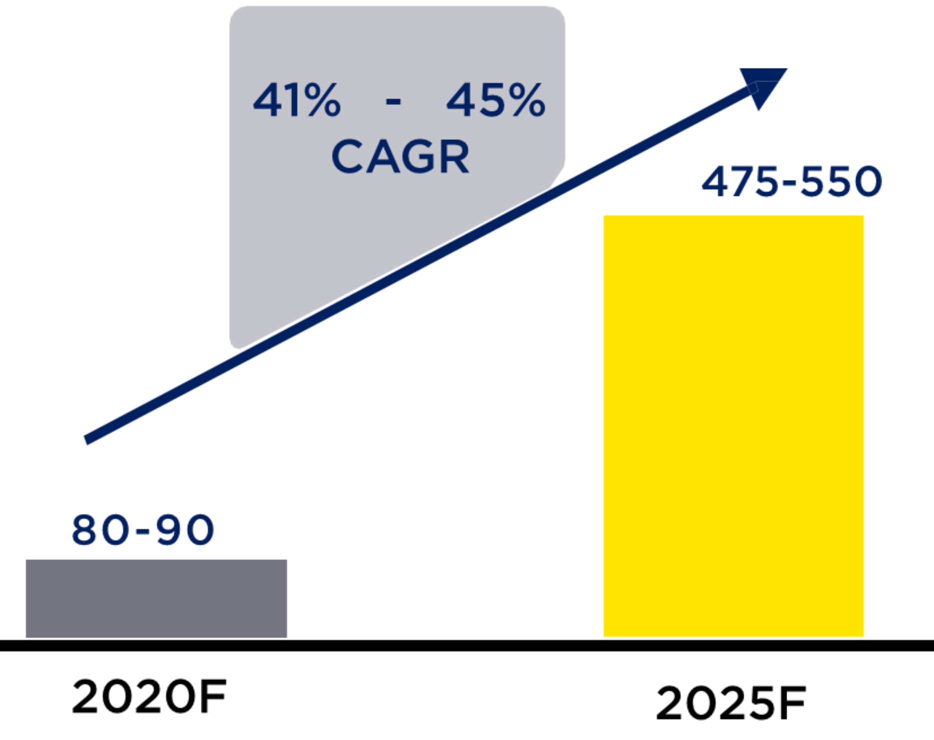
FTTH/X SEGMENT

Offices , Residential space, Malls, airports, hotels, hospitals, universities, metro stations, government buildings and dense markets FTTH demand will result into Last Mile Fiberization

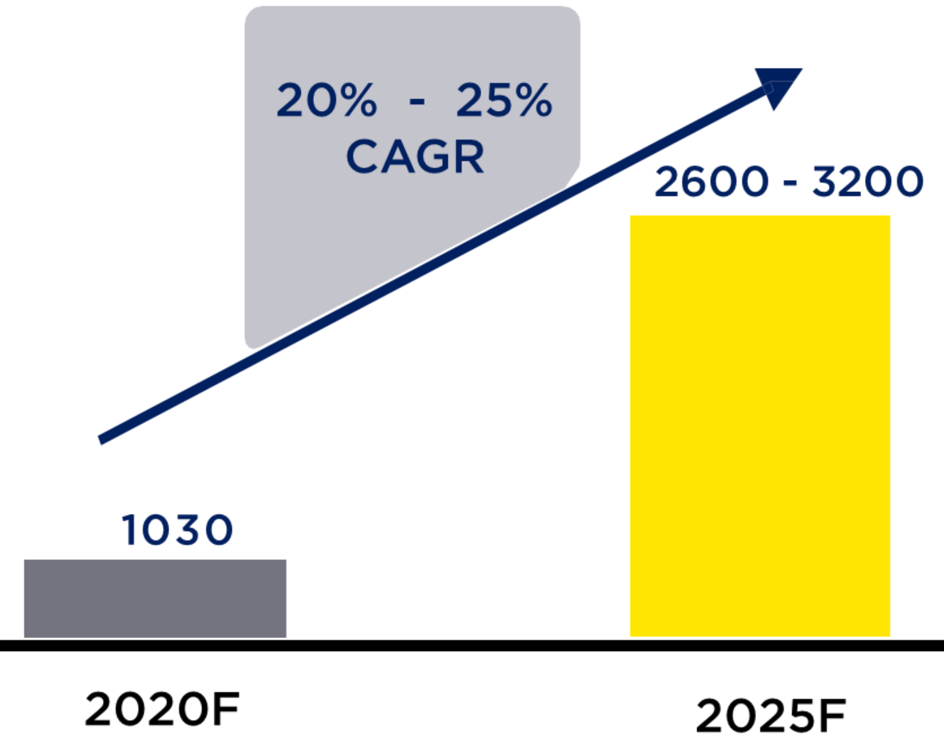
TOWER FIBERIZATION



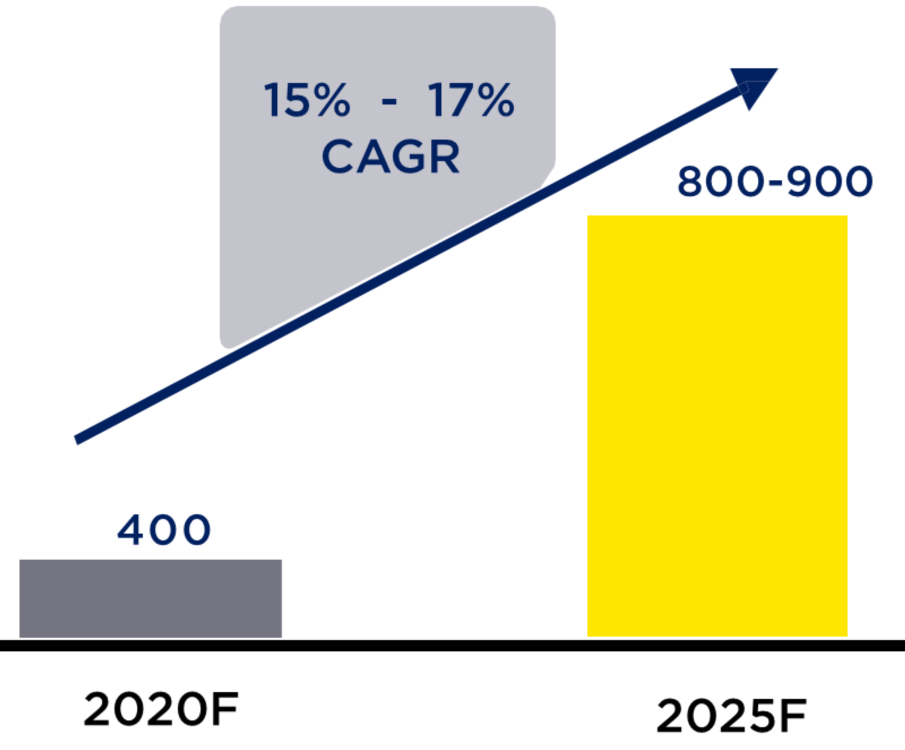
Small Cells ('000)



IBS/DAS (m Sq ft)



Wi-fi Hot Spots ('000)



BUSINESS OPPURTUNITY !!!!

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Opportunity	Assessment	Challenges	Heatmap	2023F Potential (INR)
Fiber deployment Backhaul		RoW Pricing of intra-city and NLD fiber Regulatory approval		405 b - 480 b
	Tower Fiberization			150 b - 155 b
	Last Mile			065 b - 075 b
	Intracity Fiber			065 b - 100 b
	National Long Distance			110 b - 130 b
	Microwave			015 b - 020 b
Small cells (4G+5G)	Small Cell deployment with Fiber Last Mile	Site acquisition and RoW		55 b - 70 b
Wi-Fi & IBS (Neutral Host)	Neutral host Wi-Fi with Fiber Backbone & Access Network	Monetization		45 b - 50 b
Smart Cities	Digital infrastructure Development	Revenue Models & Monetization		

INTERESTING DATA POINTS

	2017	2020
Digital only	1-1.5 million Subscriber	4 million subscribers
Tactical digital consumers (Pay TV + Pay OTT)	6 million subscribers	20 million subscribers
Mass consumers (Pay or Free TV + Free OTT)	200+ million subscribers	500+ million subscribers

ACTIVE USERS ON APPs

- WhatsApp 530 Million
- YouTube 460 Million
- Facebook 350 Million

More than Population of

TIME & DATA

Average Daily Time Spent - 280 Minutes on Apps

In 2021 - 33 EB Internet Usage and expected to reach 144 EB by 2024

DIGITAL TRANSACTIONS

- Digital payments - 33% Growth (YoY) - 7,422 Crore digital payment in 2021F up from 5,554 crore transactions 2020F
- 40 Millions - New Ecommerce Shoppers added in 2021

HURDLES - FIBERIZATION

Category	Challenges/ issues	Way Forwards
Right of Way Permissions while laying fiber	▶ Policies of the state governments are not aligned with the central guidelines, resulting in delays in roll-outs ▶ RoW (Multiple Agencies) acting automously including Forest ,Electricity, Gas, Sewerage, Railways, NHAI, causing delays and cost inefficiencies	▶ Timebound & Uniform Rules of Payment for RoW , Establish common permissions processes for all utility purposes ▶ A nodal agency to ease multiple permissions required. Single window clearance by leveraging digital to bring transparency and predictability
Execution: Digging, Trenching	▶ Inefficient and uncoordinated digging and maintenance impacts rollout time and life span of fiber	▶ Adhere to GIS systems and 'call before you dig' and "dig once" policies. ▶ Set up a utility corridors - Enable Fiber to ride on utility networks for -roads, power, water etc. on fast track utility corridors
Activation and Deployment of fiber Approvals	▶ Multiple government personnel currently tasked to approve the same sections of deployment ▶ Significant number of human touch points -leading inefficiencies in time, cost and resource.	▶ Reduction of approvals by empowering government officials to represent various depts.. ▶ An efficient utilisation of technology for surveillance and documentation ▶ A transperant vendor selection criteria to be followed
Quality/ Standardization / Public projects - bids	▶ Lack of standardization in procurement of material ▶ Untraceable fiber network ▶ Training manpower	▶ Centrally held guidelines on standardisation via repository ▶ Ensure the utility corridors and duct dimensions accommodates high count optic fiber ▶ Set up of Common GIS platform for management of utilities ▶ Amend building codes to include fiber along with water, electricity, and gas pipelines

BRIDGING THE GAP

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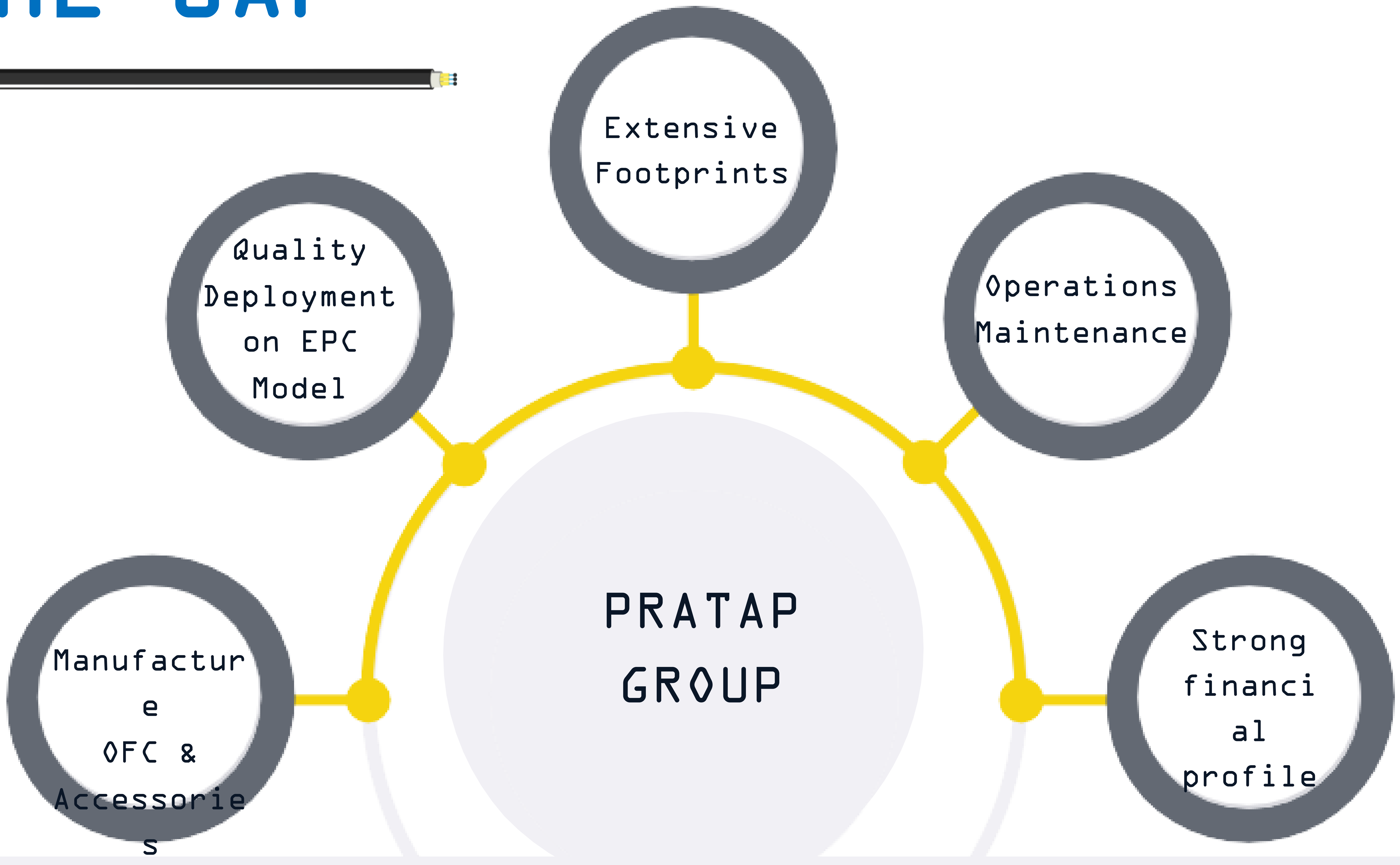


Creating value chain by providing all services under one roof
-Manufacture, Design & Engineering, Deployment , Maintain & Operate

CORSIS	BECKHAUL	PRATAP TECHNOCRATS
MANUFACTURE	DESIGN & DEPLOY	OPERATE

BRIDGING THE GAP

SUPPLY

- In-House Manufacturing Facility (PITHAMPUR , Indore)
- OFC , Joint Closure , Patch Cord , FAT/FDMS etc.
- TEC / RDSO APPROVED
- Deep Connect with other Suppliers (Duct , MH/HH etc)

DEPLOY

- SPECILAZATION IN FIBER DEPLOYMENT PROJECTS
- EXPERTISE IN PLANNING , DESIGN and DEPLOYMENT
- INFRA - ACTIVE AND PASSIVE I&C SERVICES
- ROW and Permissions

OPERATE

- O&M - ~1.8 Lac Fiber KM and ~0.9 Lac Telecom sites
- O&M Work - 24x7x365 (Fiber , Sites , Active & Passive)
- Surveillance , Preventive & Corrective & Scheduled maintenance

PRESENCE - FOOT PRINTS

OPTICAL FIBER CABLE MANUFACTURING - CORSIS

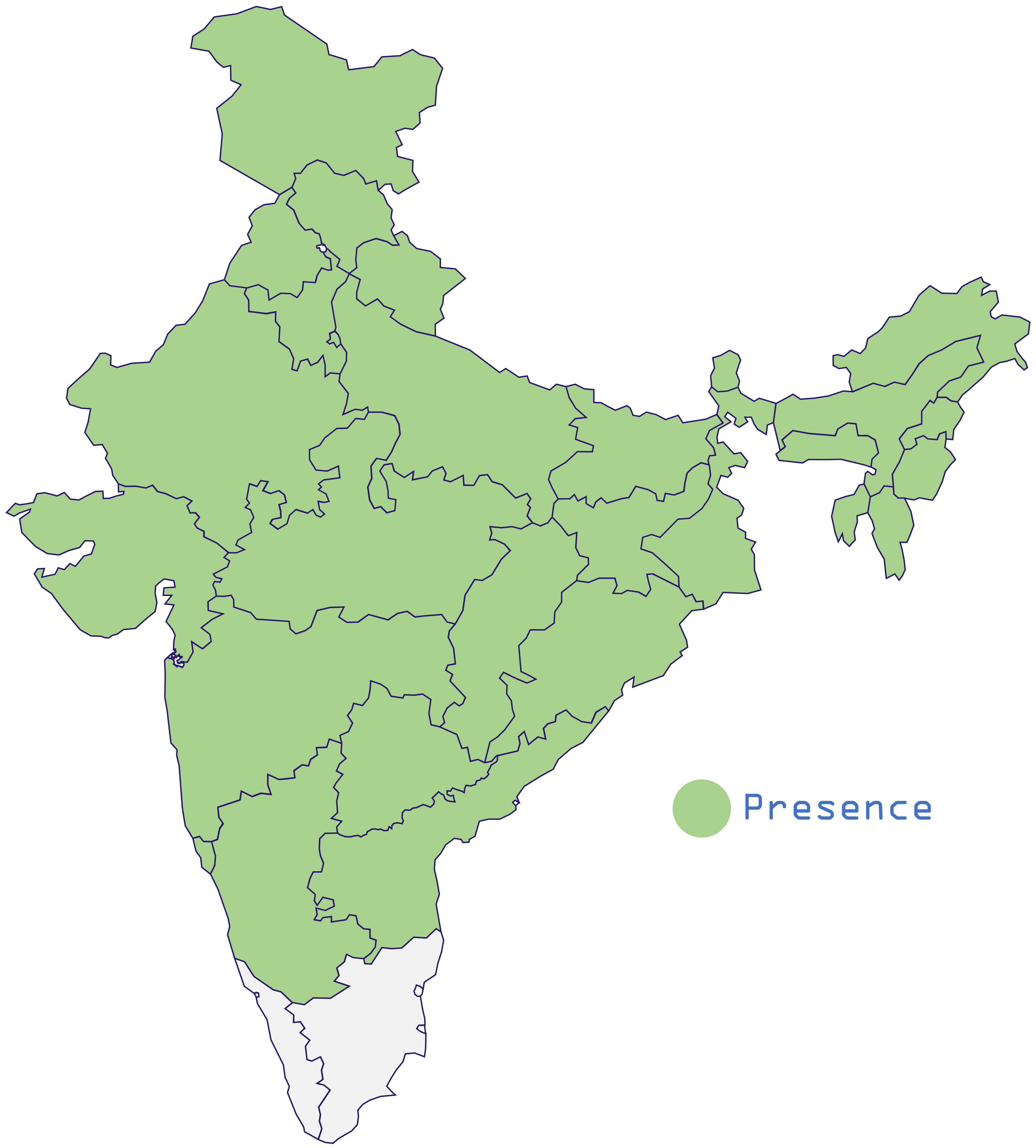
Manufacturing Plant- Optical Fiber Cable (OFC) Ranging of 2F to 288F
Capacity- 3 Million FKM/Year
Capability- Tube, Ribbon, Spiral & RF OFC cables & Patch chords, Pig tails etc.

DEPLOYMENT WORKS - EPC / TURNKEY / SERVICES

~ 12000 KM - Fiber T&D Projects.
~ 14500 KM - Order Book - Fiber T&D
~ 41+ HDD/JCB/BLOWING MCs
~ ITIL , BBNL , BSNL

TOWER OPERATIONS

~ 1,80,000 Fiber O&M , ~ 650+ FRT Team
~ 90,000 Towers Passive & ~ 70,000 Active Nodes O&M
~ Technical Manpower Solutions
~ NoC / ToC / LFL / MFL
~ Owned TMIs and Equipments



Land Area

Plant is situated at mid of India near to Indore commercial Capital of Madhya Pradesh, India in land area of 10.2 Acre.

Production Machineries

We are equipped with 22+ fully automated production lines and Nitrogen plant as well.

R&D Lab & Quality Testing

We are equipped with 50+ lab equipment to test product's and Raw materials optical & reliable characteristics in order to ensure best quality of products.

Capacity

We have capacity to manufacture 3 Million Fiber KMs (FKMs) cable per annum.

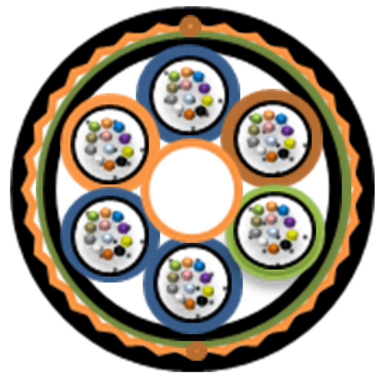
Delivery Capability

We are capable and have all the provisions to deliver our products across the globe.

PRODUCTS

- ❑ FTTH Cables
- ❑ Aerial OFCs
- ❑ ADSS OFCs
- ❑ Armoured Duct OFCs
- ❑ Unarmored Duct OFCs
- ❑ Ribbon OFCs

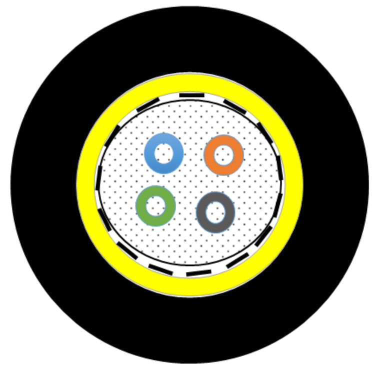

Unitube Arm/Unarm OFC

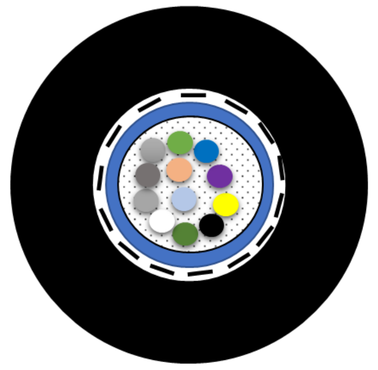

Multitube Arm/Unarm OFC

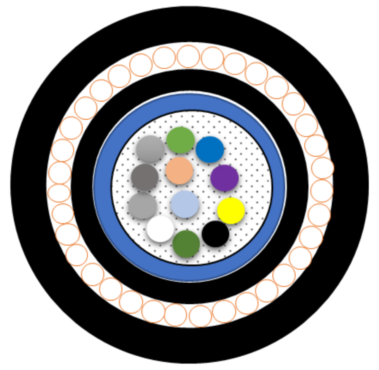

ADSS OFC

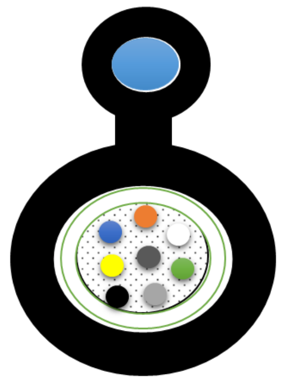

Ribbon Arm/Unarm OFC

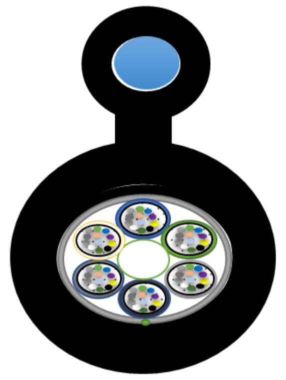

Micro OFC

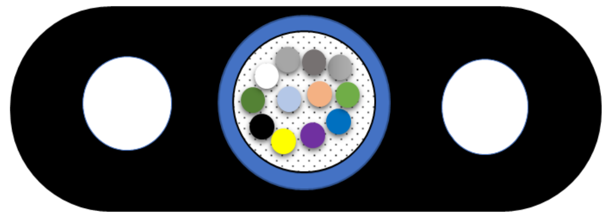

Tight Buffer Spiral OFC

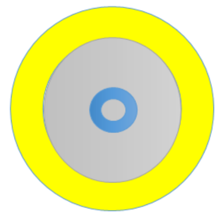

Unitube Spiral OFC

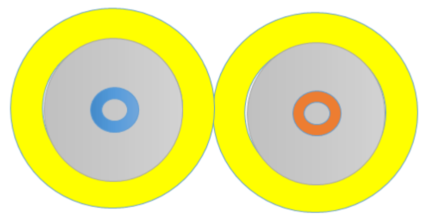

Unitube Wire Arm OFC

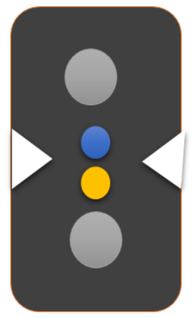

Unitube Aerial Fig-8 OFC


Multitube Aerial Fig-8 OFC

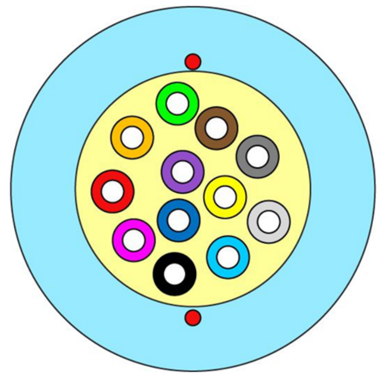

Flat Aerial OFC

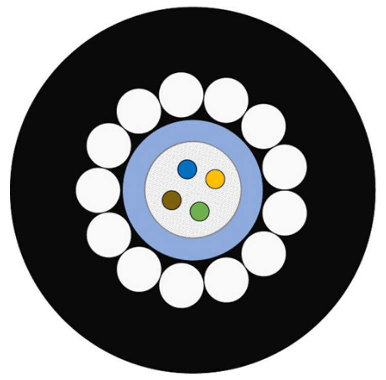

Simplex OFC

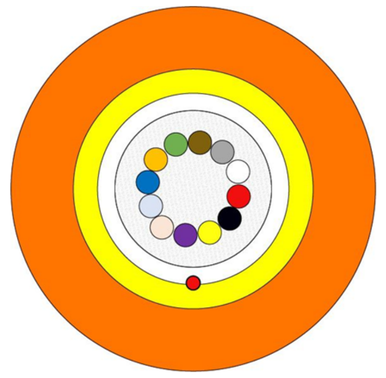

Duplex OFC

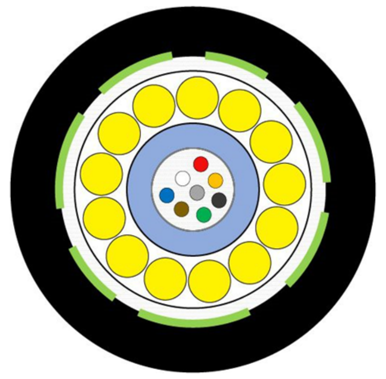

Flat Indoor OFC


Flat Outdoor OFC


Distribution OFC


Tactical OFC


Unitube Micro duct OFC


Unitube ARP Arm OFC

BECKHAUL TECHNOLOGIES

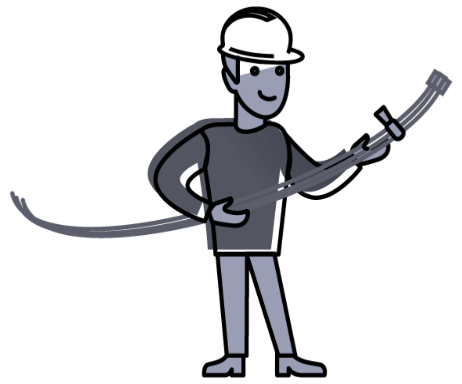
corsis TECHNOLOGIES

- ❑UG Infrastructure Developer & Creator
- ❑India's 1st Company to create a Organized MID-Level Space for creating Underground Infrastructure.
- ❑Specialized and Experts with Best minds in Business
- ❑Enhancing Innovative Capability for building rapid & agile (UG) Deep Connect.
- ❑**Order Book – 14500 Km**

OUR OFFERINGS

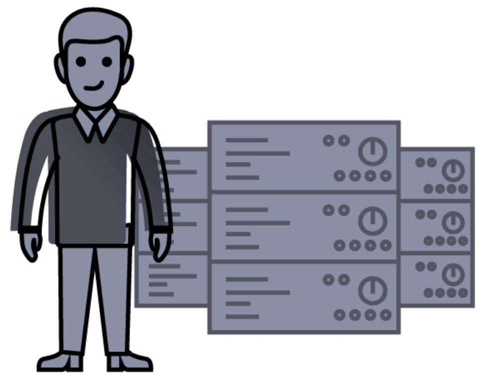
Fiber Projects	FTTH/B IBS/Wifi	Smart Cities	UG Cabling	Turnkey Projects

RESOURCES



Employee Strength of >16,000

100+ T.I. Teams



900+ Fiber Restoration Teams

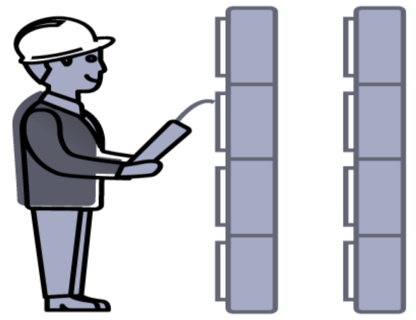
Patroller Fleet of 2000+

Splicing Van 900+

Team of 5000+ Trained Technicians

2500+ Trained Riggers

Utility Van 250+



Owned Fiber TMIs Sets - 585+

10000+ Technician Handtools

41+ HDD/JCB M/C

Value to Customer ?

ONE STOP SHOP

OPTIMIZED COSTING
(HIGHER SAVINGS)

MULTIPLE SOLUTION MODELS
(CAPEX & OPEX)

QUICK & AGILE
ROLLOUTS

360° - END-2-END TELECOM
NETWORK MANAGEMENT

EPC PROJECT EXPERTISE
(FINANCIAL CAPABILITIES)

Reach us ..!!

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