# Digital India:

## connectivity to coverage for an inclusive broadband society

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# India is speeding ahead on a digital super highway

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## Connecting the unconnected: milestone Government programs

### Digital India

- Digitally empowered knowledge economy
- Infrastructure as a utility for each citizen
- e-governance and services on demand
- Thrust on 9 pillars for transforming India's digital profile

### Smart Cities

- 100 smart cities by 2021-22 - 99 smart cities identified
- Broadband as backbone of smart city
- Seamless and effective framework for essential public utilities

### Bharat Net

- Connectivity to 250,000 Gram Panchayats (GP)
- Laying Optic Fiber Cables for seamless connectivity
- Provide 1 Gbps connectivity to 600,000 villages

### Draft NDCP 2018

- Broadband for all
- Thrust on new technologies- 5G, Cloud, IOT and data analytics
- Fibre first strategy
- Increase contribution of Digital Communications to 8% of GDP

## Draft National Digital Communication Policy (NDCP) 2018 - embarking on a Digital Broadband Mission for 2022

**50 Mbps**
Universal Broadband coverage to every citizen

**10 Gbps**
Connectivity to Gram Panchayats by 2022; 1 Gbps by 2020

**100 Mbps**
Broadband on demand for institutions (including educational)

**10 million**
Public Wi-Fi spots by 2022; Deploy 5 million by 2020

**65%**
Unique mobile subscriber density by 2022; achieve 55% by 2020

**50%**
Fixed line broadband access to households enabled by 2022

# Digital India is transforming lives of 1.3 billion people

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## Growth in e-governance

**9.6m** 2014

**84.2m** 2017

**8.7x** rise in e-governance transactions/day

## JAM – unleashing social revolution

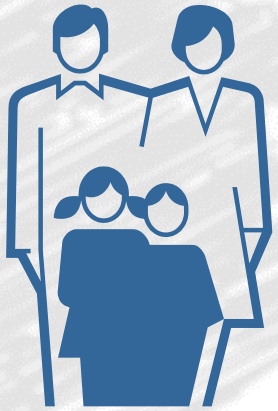
Link Jan Dhan accounts, mobile numbers and Aadhar cards

**295m** Aug'17

Total accounts opened

**176m** Aug'17

No. of rural accounts opened



## Smart Cities - connecting citizens

**189** Projects completed

**US$31b** Project cost for 99 cities

**US$1b** outlay for 2018-19; **1.5x** rise in allocation to spur growth

## Towards a cashless economy

**US$2t** In Jan'18

Digital payment transaction value

**1.1b** In Jan'18

No. of digital payment transactions

## Make in India

**60m** FY15 (Mar'15)

**225m** FY18 (Mar'18)

**3.7x** rise in Mobile handsets manufactured and 115 new plants set up

## Established a 'Digital Identity'

**0.6b** 2014

**1.2b** 2017

**2x** rise in 'Aadhar' registered users

## GST – Biggest indirect tax reform

**68,299** Companies registered in 8 months

**US$15b** GST revenue collected in the month of April'18

## Demonetization

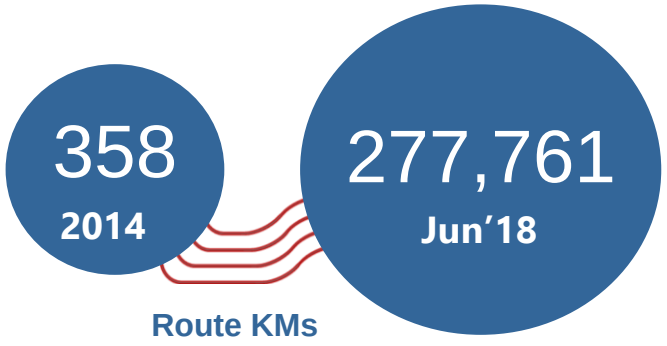
Boost to digital payments

Closure of shell companies

Formalization of economy

Improvement in income tax filing

# BharatNet is bridging the digital divide




116,397 Gram Panchayats (Rural Councils) connected with Optic Fiber

Incremental 150,000 Gram Panchayats by Dec'18 in Phase 2

600,000 villages will be connected by 2018

## Draft NDCP 2018 to augment fiber connectivity

**GramNet**

Connecting key rural development institutions with 10 Mbps upgradeable to 100 Mbps

**NagarNet**

Establish 1 million public Wi-Fi hotspots in urban areas

**Jan Wi-Fi**

Establish 2 million Wi-Fi hotspots in rural areas

## BSNL is committed toward driving connectivity agenda

**700,000** route KMs of Optic fiber deployed

Development of **5 Smart Cities** underway

Installed **23,000** Wi FI access points across India

Aims to deploy **100,000** Wi-Fi hotspots, with **25,000** hotspots in rural areas

# After 4G disruption, India ready to embrace the 5G roadmap

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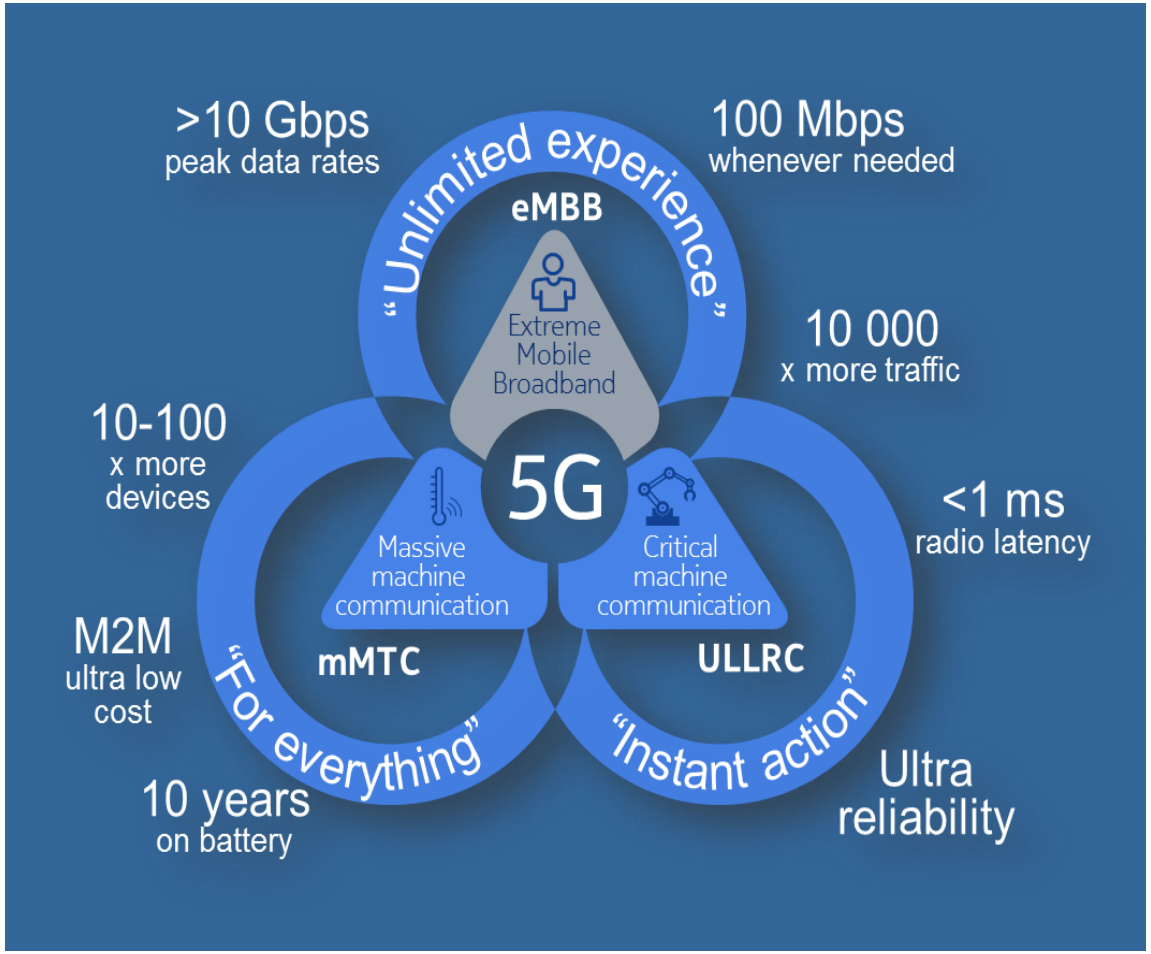
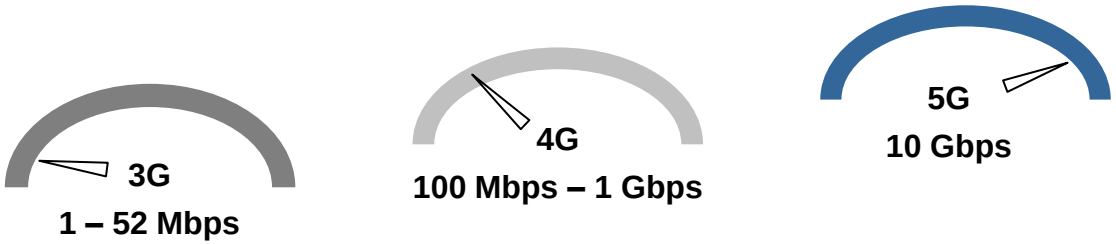
## Addressing challenges of the future

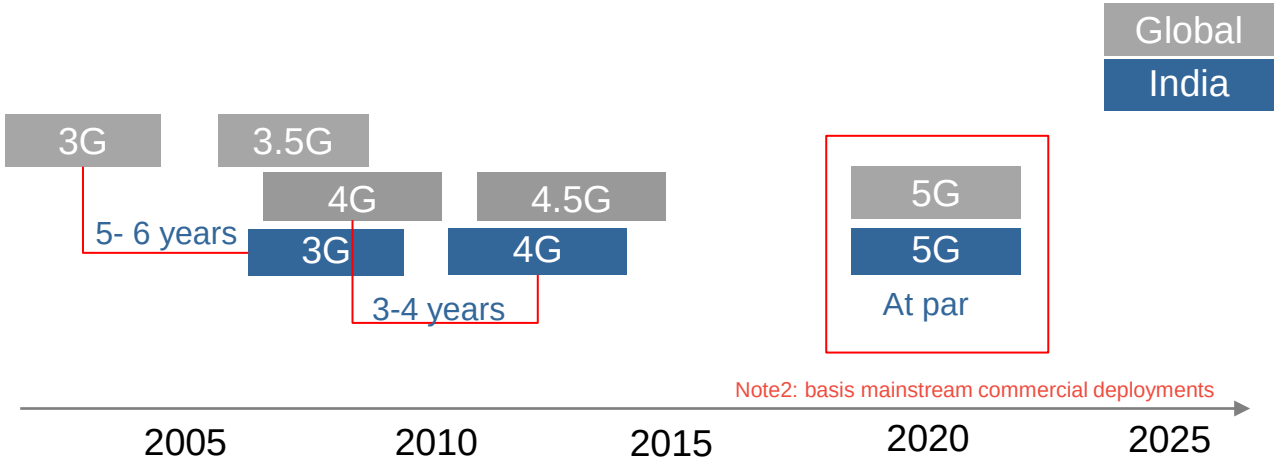



## Enhanced broadband user experience[1]




Note1: Maximum theoretical downlink speed

## India - late entry for 3G, 4G; poised to catch up for 5G[2]




Sept'16: Jio launched 4G

Jun'18: BSNL launches 4G

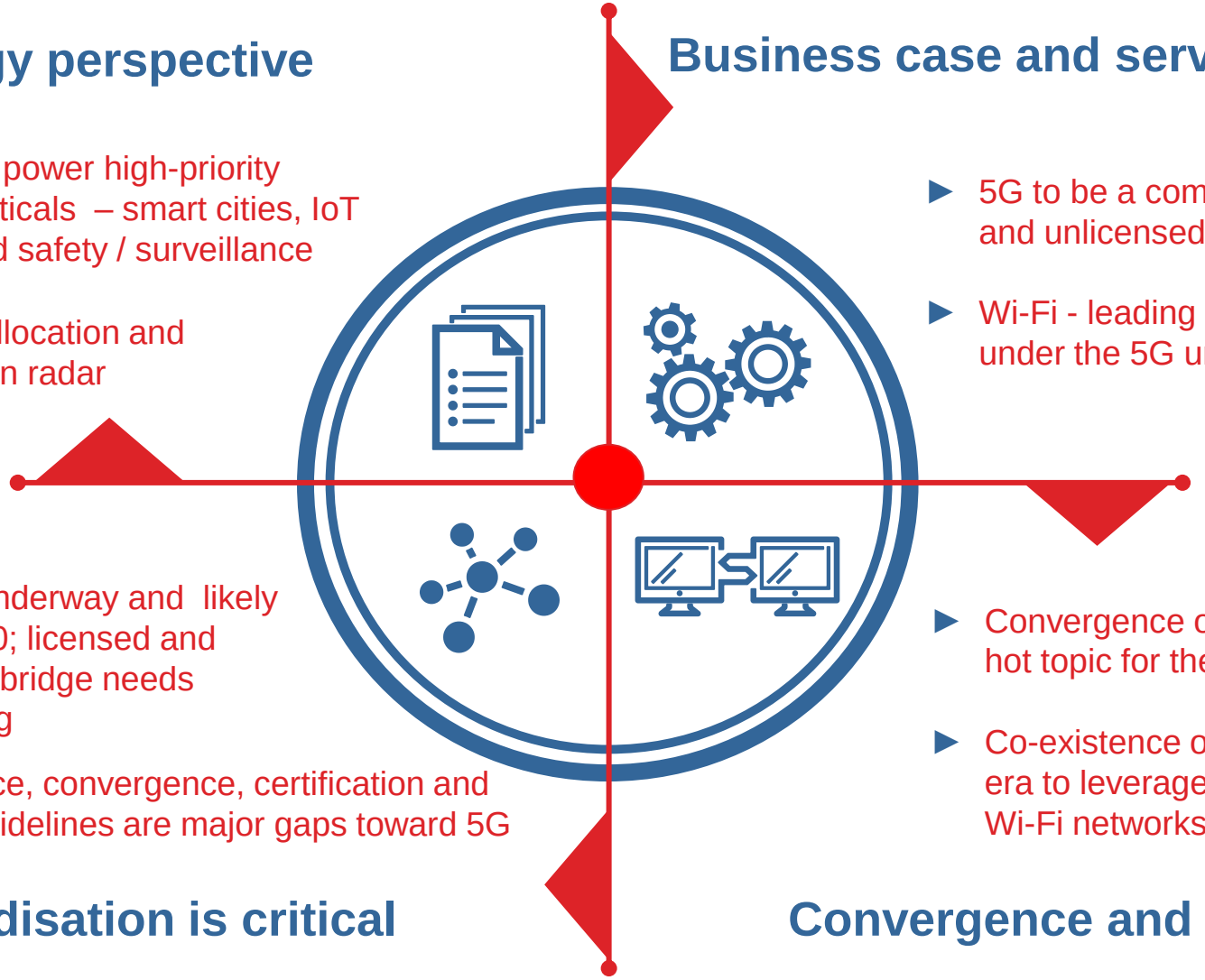
# Promising role of Wi-Fi and unlicensed technologies in 5G

## Technology perspective

- Potential to power high-priority industry verticals – smart cities, IoT sensors and safety / surveillance
- Spectrum allocation and regulation on radar

## Business case and service development

- 5G to be a combination of licensed and unlicensed technologies
- Wi-Fi - leading unlicensed technology under the 5G umbrella



## Standardisation is critical

- Progress underway and likely before 2020; licensed and unlicensed bridge needs fast-tracking
- Co-existence, convergence, certification and operator guidelines are major gaps toward 5G

## Convergence and co-existence

- Convergence of services currently a hot topic for the industry
- Co-existence of technologies in a 5G era to leverage efficiency levels over Wi-Fi networks

# Telecom operators globally are leveraging Wi-Fi potential

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## AT&T

Enhancing connectivity through Wi-Fi

- Wi-Fi in international data offers: 18m hotspots in 100+ countries
- Free Wi-Fi in select bus shelters in Chicago
- Installed touch-screen information kiosks offering free public Wi-Fi services in Chicago

## KT Corp

Wi-Fi deployment for connected nation

- **100,000 Wi-Fi** access points free of cost to all citizens in South Korea including shopping, culture and tourism facilities
- **Wi-Fi traffic doubled** to **14.1 TB** in April 2017; reduced citizen's data expenses

## TSHwi-fi

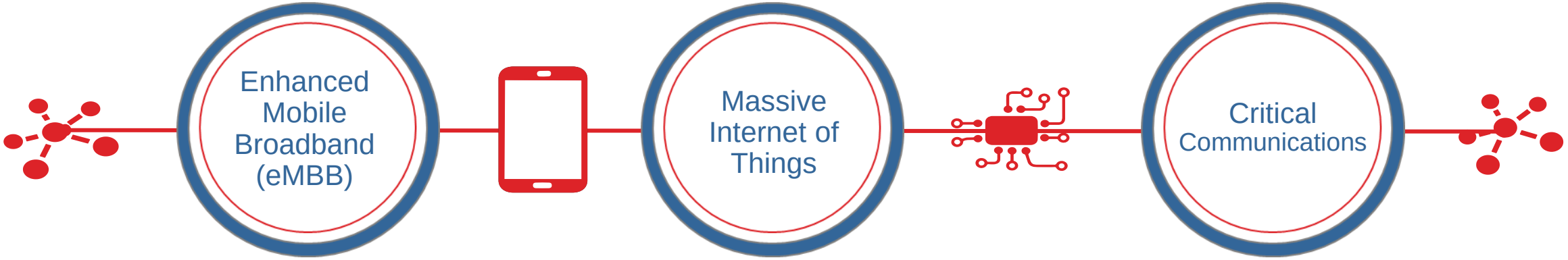
Largest Free public Wi-Fi in Africa

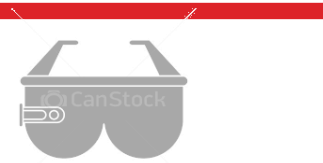
- **1,050 free internet zones** situated in public places in **City of Tshwane** (South Africa)
- Provides **500 MB data/device/day** and unlimited access to educational, employment-focused, and entertainment content

## BSNL leading Wi-Fi services deployment

- 1,00,000 Wi-Fi hotspots by 2018
- Wi-Fi Broadband on rev- sharing with em-paneled companies
- Wi-Fi offload solution implemented on large scale

# Wi-Fi and 5G use cases

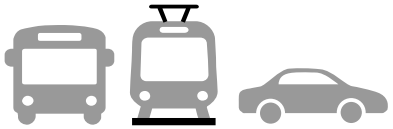


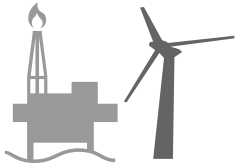


Virtual and Augmented Reality

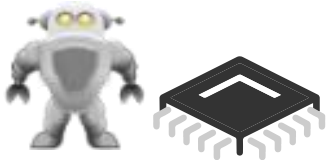

Smart Manufacturing


Wireless home entertainment and automation


Smart Cities


Connected Automotive


Connected Energy


Connected drones


Smart Healthcare

# Thank you