



# **5G and Wi-Fi 6**

## **(Key Drivers of Connectivity and Business)**

Date : 2<sup>nd</sup> Feb. 2023

# India's Data Connectivity

- The affordable data plan make Indian Consumers habituated of consuming high data volume.
- The demand of high-speed data drive the push towards:
  - 5G Mobile Technology
  - Wi-Fi 6 Technology5G and Wi-Fi 6 will be complementing technology and go together for best user experience.

# 5G and Wi-Fi 6 Technology

- 5G and Wi-Fi 6 Technology meant to deliver:
  - Higher multi-Gbps peak data rate
  - Ultra low latency
  - More Reliability
  - Massive Network capacity
  - More user handling
- Higher performance and improved efficiency of 5G and Wi-Fi 6 empower:
  - New user experience of data connectivity
  - Connectivity to new devices/industries for new business opportunities.

# 5G and Wi-Fi 6 Enables

Due to the enhance connectivity efficiency of 5G and Wi-Fi 6, it enable:

- Machine-to-machine (M2M) communication
- Device-to-device (D2D) communication
- Quality of Service (QoS)
- Network Function Virtualization (NFV)
- Vehicle to Everything (V2X)

# Benefits the most from 5G and Wi-Fi 6

5G and Wi-Fi 6 technology have the potential for societal transformation of any country. Digital connectivity enables:

- Education Sector
- Agricultural Sector
- Healthcare Sector
- Manufacturing Sector
- Transportation Sector

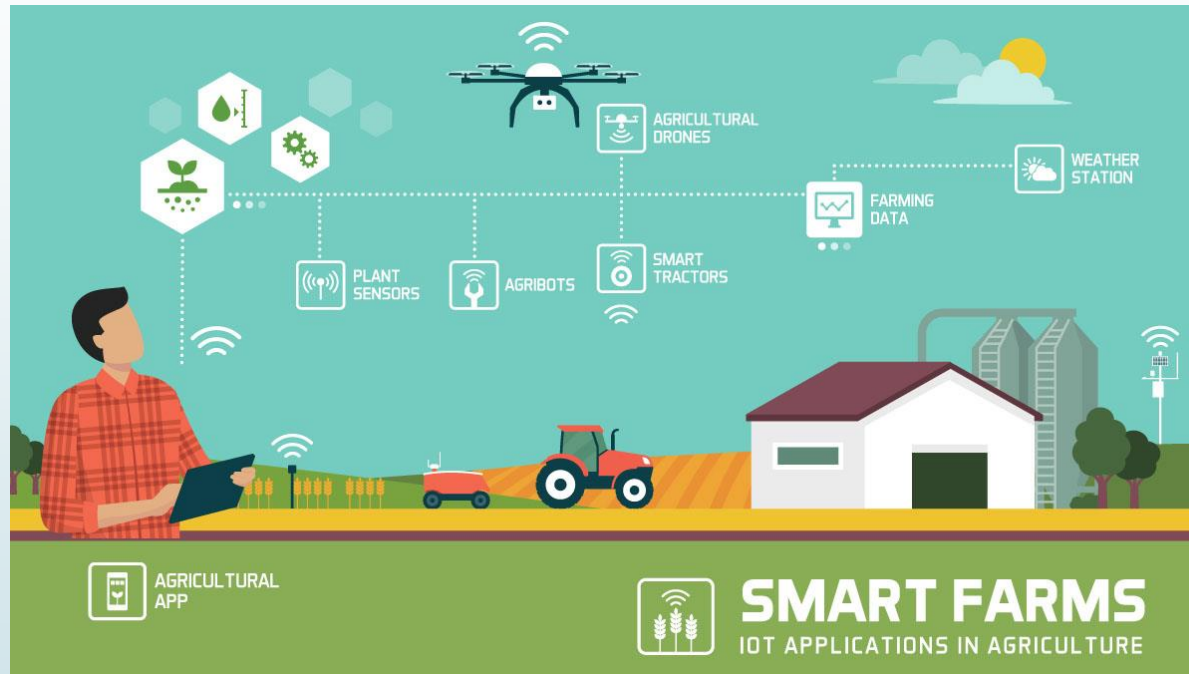
And many more.....

# Education Sector



- The virtual reality will be a reality for student.
- New e-learning platforms will be based on AR/VR technologies.
- Live stream lessons in real-time with an ultra-high definition (UHD) resolution

# Agricultural Sector



- With the advent of IOT based sensors and **seamless network coverage through 5G & Wi-Fi** better management of crops and livestock can be done.



# Healthcare Sector



- Remote monitoring,
  - Real- time medical imaging,
  - Remote surgery,
  - Medical data management
- will be possible in the health care segment through **highly-reliable and low-latency 5G and Wi-Fi 6** based network.



# Manufacturing Sector



With the new **5G & Wi-Fi network**

- Manufacturer will be able to operate using Automated Guided Machines for maximum output with reduced human error.
- Asset monitoring can be performed with digital sensors.

# Transportation & Traffic Management



- Seamless and **high-performing 5G/Wi-Fi band network** will create opportunity for airports, railways, connected vehicles and smart logistics.
- AI-enabled cameras with sensors will ensure traffic monitoring, prevention of speeding and dangerous driving.
- Driver-less vehicle will be a reality soon like metro.

# Wi-Fi 6 Experience



## Higher data rates

- 1024-QAM for up to 9.6 Gbps per radio and single-antenna speeds of 1.2 Gbps
- 8x8:8SS
- Enables next-generation 4K/8K and AR/VR video



## Increase in overall network capacity

- 3x to 4x more throughput than 802.11ac via OFDMA
- Up to 4x capacity gain in dense scenarios with BSS coloring
- Multiuser MIMO gains on all client types



## Reduced latency and greater reliability

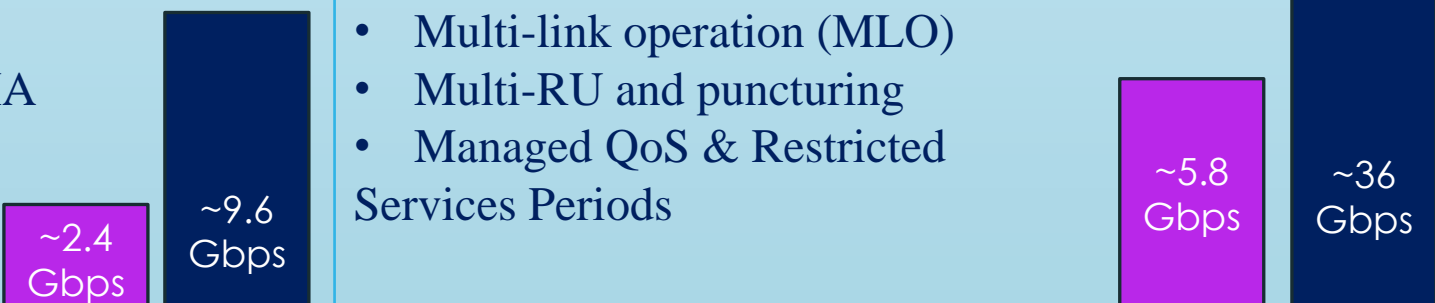
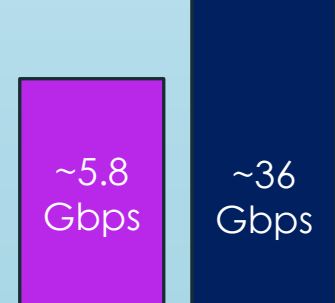
- Scheduled uplink and downlink OFDMA for deterministic "cellular-like" latency, reliability, and QoS
- Optimized for IoT scale with hundreds of devices per AP



## Improved power efficiency

- Up to 3x better battery life with Target Wake Time (TWT)
- New coding structure and signaling procedures for better transmit and receive efficiency

# Next Generation of Wi-Fi : Wi-Fi 7

Wi-Fi 6 / 6E (2019)	Wi-Fi 7 (2024)
<b>IEEE 802.11ax</b> <b>Bands:</b> 2.4 GHz, 5 GHz, 6 GHz (yet to delicense)  <b>Channel Bandwidths</b> 20, 40, 80, 160 MHz <b>1024 QAM</b>  <b>KEY FEATURES:</b> <ul style="list-style-type: none"><li>• Best-in-class WPA3 security</li><li>• UL and DL MU-MIMO, OFDMA</li><li>• Target Wake Time (TWT)</li></ul>  <p>~2.4 Gbps    ~9.6 Gbps</p>	<b>IEEE 802.11be</b> <b>Bands:</b> 2.4 GHz, 5 GHz, 6 GHz (yet to delicense)  <b>Channel Bandwidths</b> 20, 40, 80, 160, 320 MHz <b>4096 QAM</b>  <b>KEY FEATURES:</b> <ul style="list-style-type: none"><li>• Multi-link operation (MLO)</li><li>• Multi-RU and puncturing</li><li>• Managed QoS &amp; Restricted Services Periods</li></ul>  <p>~5.8 Gbps    ~36 Gbps</p>



# C-DOT Wi-Fi 5/6 Product Range



**Wireless Gateway Router (WGR)  
Dual band Outdoor AP(DOA)**



**Enhanced Access Point  
(EAP)**



**802.11ax Access Point  
(TEJ-3600)**

*Thank You*

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