

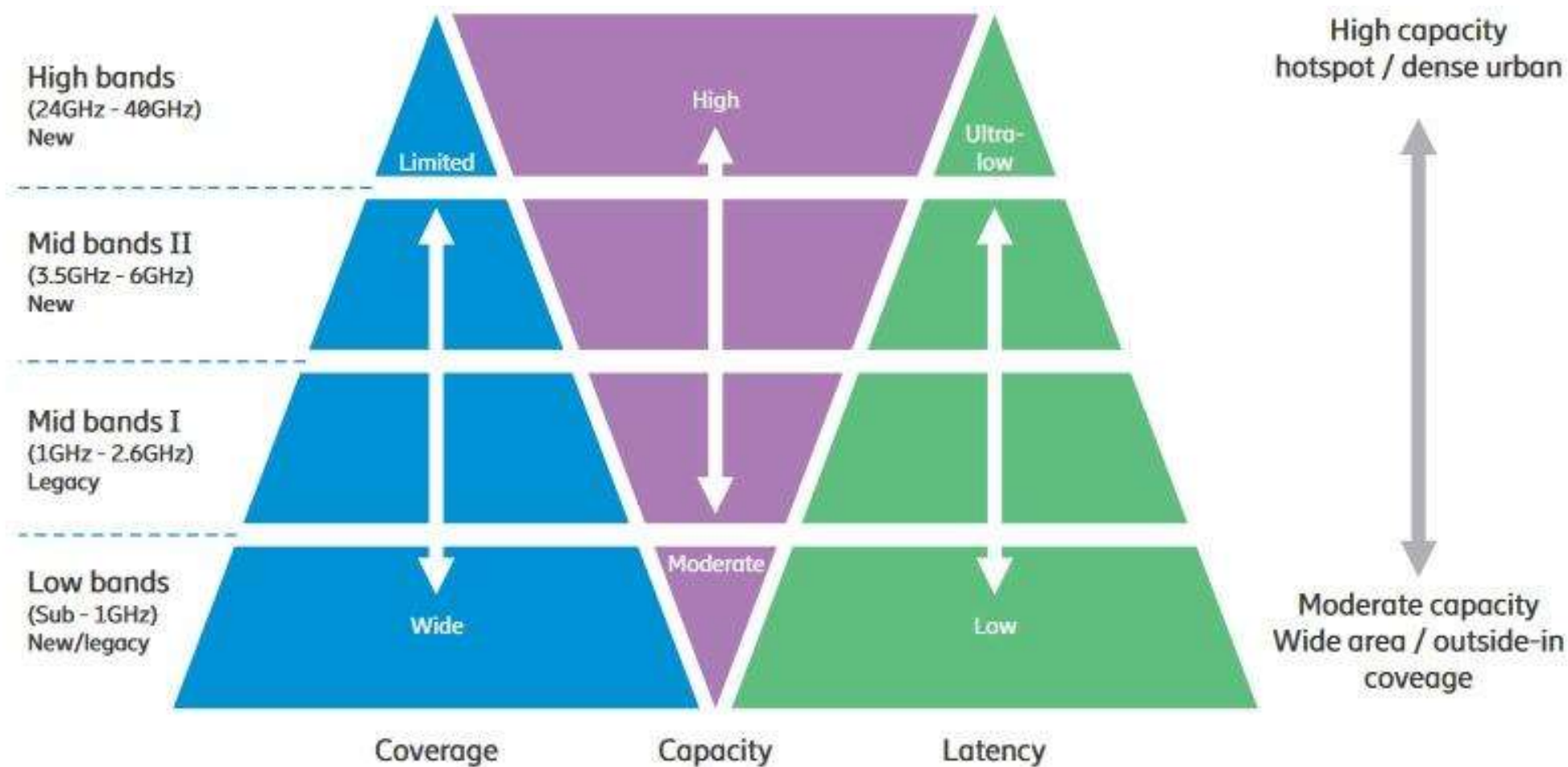
ISMC 16-19 October, 2023

- i) NEXT SPECTRUM AUCTION
 - ii) CNPN
 - iii) PPDR

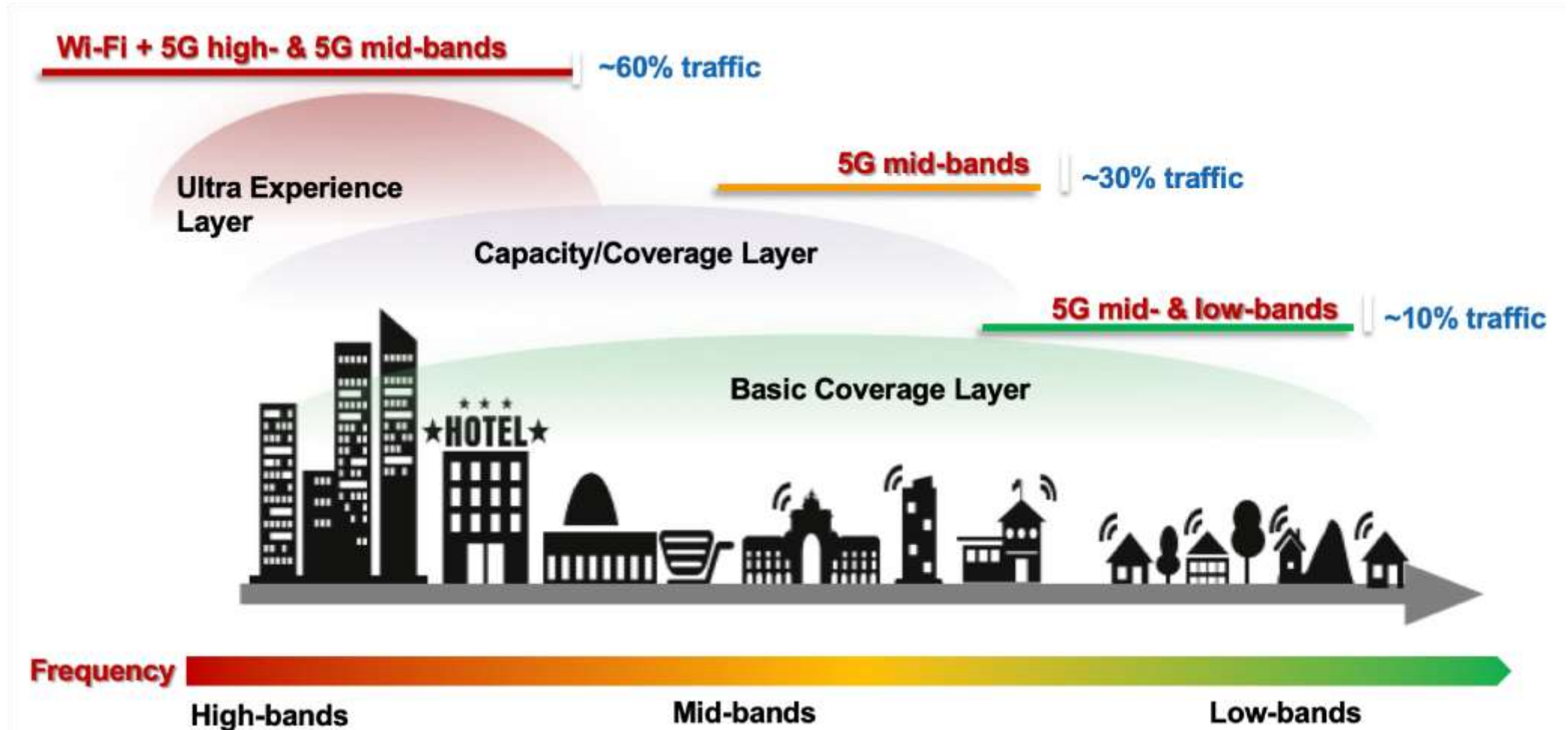
General Communication requirements for any application/ service could be defined in terms of:

1. High Data rate
2. High Throughput
3. High Capacity
4. High reliability
5. Low latency
6. High Mobility
7. High Security
8. Long battery life, Low cost, Less complexity
9. Wide coverage and more

Low / Mid / High Bands



Traffic Spread across Low / Mid / High bands



IMT Frequency Bands-Distinct bands for Terrestrial and Satellite

Terrestrial	Satellite
<p>LOW-450-470 MHz, 470-698 MHz, 694/698-960 MHz, 1 427-1 518 MHz, 1 710-2 025 MHz, 2 110-2 200 MHz, 2 300-2 400 MHz, 2 500-2 690</p> <p>MID- 3 300-3 400 MHz, 3 400-3 600 MHz, 3 600-3 700 MHz, 4 800-4 990 MHz,</p>	<ul style="list-style-type: none">The Satellite component frequency bands which are part of 3 GPP Rel. 17 and generally different from Terrestrial component are: 1980MHz – 2010 MHz Uplink/ 2170 MHz – 2200 MHz Downlink and 1626.5 MHz – 1660.5 MHz Uplink/ 1525-1559 MHz Downlink <p><i>Note: parts of these bands (1980MHz – 2010 MHz / 2170 MHz – 2200 MHz and 1626.5 MHz – 1660.5 MHz/ 1525-1559 MHz)</i></p>
<p>HIGH (for IMT-2020 i.e.5G): 24.25-27 500 MHz, 37 000-43 500 MHz, 45 500-47 000 MHz, 47 200-48 200 MHz, 66 000-71 000 MHz.</p> <p>NOTE: Some parts/ bands are not available for IMT in India</p>	

Also, there are international efforts going on to identify, among others, 6425-7125 MHz for IMT (5G/ 6G) through upcoming WRC-2023 (AI 1.2) (next slide)

NOTE:

- HIBS are planned using the same terrestrial bands up to 2.7 GHz
- Integration of Satellite and Terrestrial means only that handset to be capable of transitioning to the satellite network if terrestrial coverage is not there

The 6 GHz band Issue

- WRC-2023 AI 1.2 (6425-7125 GHz for IMT-Region 1 Issue)
- Options for India
 1. Support R3 countries (China, Bangladesh, Myanmar, etc.) for footnote for IMT
 2. Oppose the above proposal
 3. Propose new AI for WRC-2027 for sharing studies
- 5925-6425 MHz, decision to be taken whether to go for Wi-Fi/delicensed applications or not?

Auction of Spectrum for FY: 2023 – 2024

- The Department has decided to auction the spectrum in the following frequency bands during the FY 2023-2024.

SI No	Details of Frequency Band	Type of Duplexing	Uplink/Downlink (MHz)
1	600 MHz	FDD	663-703/ 612-652
2	700 MHz	FDD	723-748/ 778-803
3	800 MHz	FDD	824-844/ 869-889
4	900 MHz	FDD	890-915/ 935-960
5	1800 MHz	FDD	1710-1765/ 1805-1860
6	2100 MHz	FDD	1939-1979/ 2129-2169
7	2300 MHz	TDD	2300-2380
8	2500 MHz	TDD	2535-2555, 2635-2655
9	3400 MHz	TDD	3300-3670
10	26 GHz	TDD	24250 -27500
11	40 GHz	TDD	37000-37500 , 37500 – 40000 , 425000-435000

Additional spectrum identified in Q and V band for sharing between IMT/Satellite services

Applications/Services	Frequency band(s)
IMT	37-37.5 GHz
IMT and Satellite Gateways links	37.5 – 40 GHz 42.5 – 43.5 GHz
Satellite user/Gateway links	40 – 42.5 GHz 47.2 – 48.2 GHz

CNPN: Captive Non-Public Networks

- Based on the TRAI recommendations the Government has enabled the enterprises seeking to establish CNPN through the following methods.
- ✓ Telecom Service Providers (TSPs) having Access Service Authorization may provide Captive Non-Public Network as a service to an enterprise by using network resources (such as through network slicing) over its Public Land Mobile Network (PLMN).
- ✓ TSPs having Access Service Authorization may establish isolated Captive Non-Public Network for the enterprises using IMT spectrum acquired by them.
- ✓ Enterprises setting up Captive Non-Public Network may obtain the spectrum on lease from TSPs having Access Service Authorization and establish their own isolated network.
- ? Enterprises setting up CNPNs may obtain the spectrum directly from DoT and establish their own isolated network. However, in this regard, DoT will undertake demand studies and thereafter seek TRAI recommendations for direct assignment of spectrum to such enterprises.
- TRAI had recommended to consider the possibility of earmarking spectrum for CNPN in the following bands 3700-3800 MHz band , 4800-4990 MHz band and 28.5-29.5 GHz band.

PPDR: Public Protection and Disaster Relief

- As per the provisions of NFAP 2022, the following frequency bands are identified for the deployment of PPDR networks.

Sl No	Details of Frequency Band	Type of Service	Uplink/Downlink (MHz)
1	300 MHz	PPDR	380-387.5/390-397.5
2	400 MHz	PPDR	410-417.5/420-427.5, part of 440-470 MHz
3	800 MHz	PPDR	806-811/851-856
4	4000 MHz	PPDR	4940-4990

- However, considering the immediate requirements of the security agencies the Government has envisaged to set apart the frequency range from 806 – 816 / 851 - 861 MHz for PPDR networks.
- The existing PMRTS/CMRTS users in the above range will be shifted and accommodated to the range from 816 - 824/ 861 - 869 MHz.

THANK YOU!