

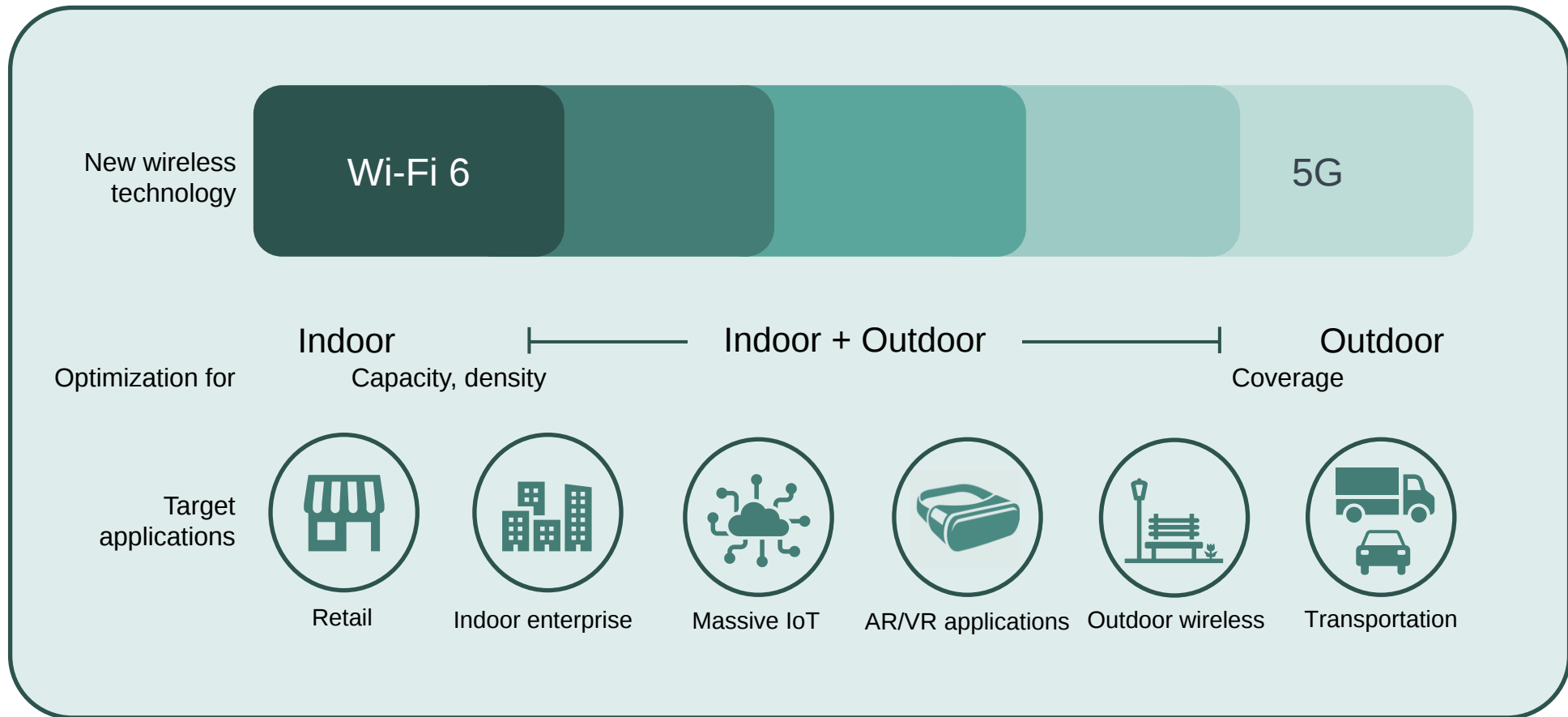


UK Spectrum Policy Forum: 6 GHz band

Alex Roytblat
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April 28, 2022

Today's connectivity requires network diversity

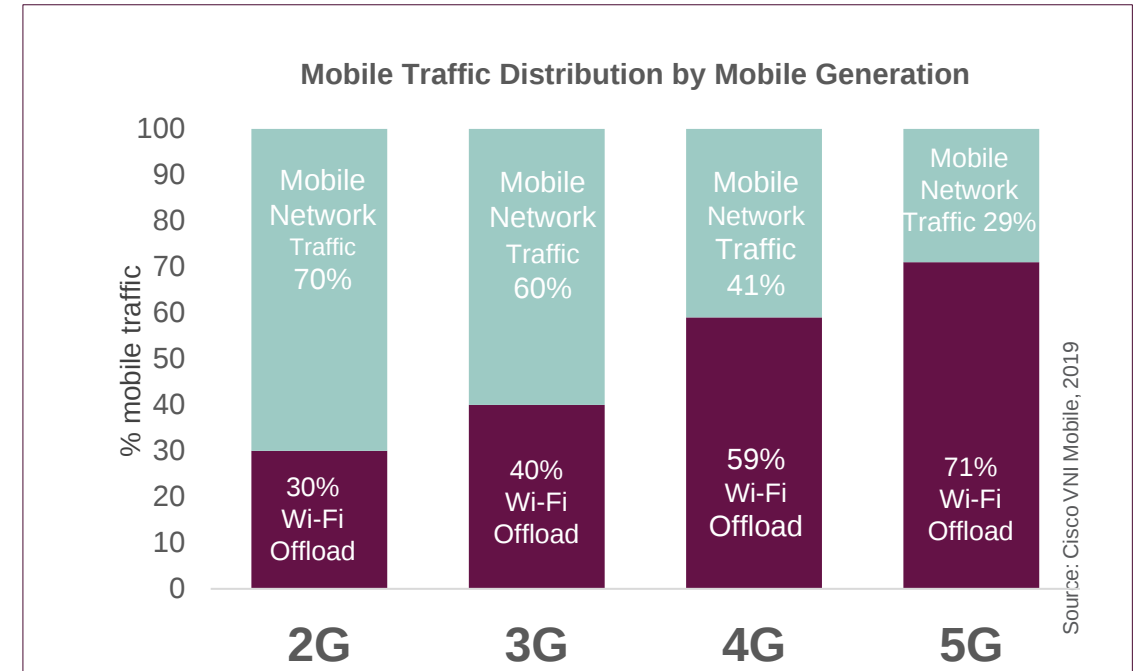
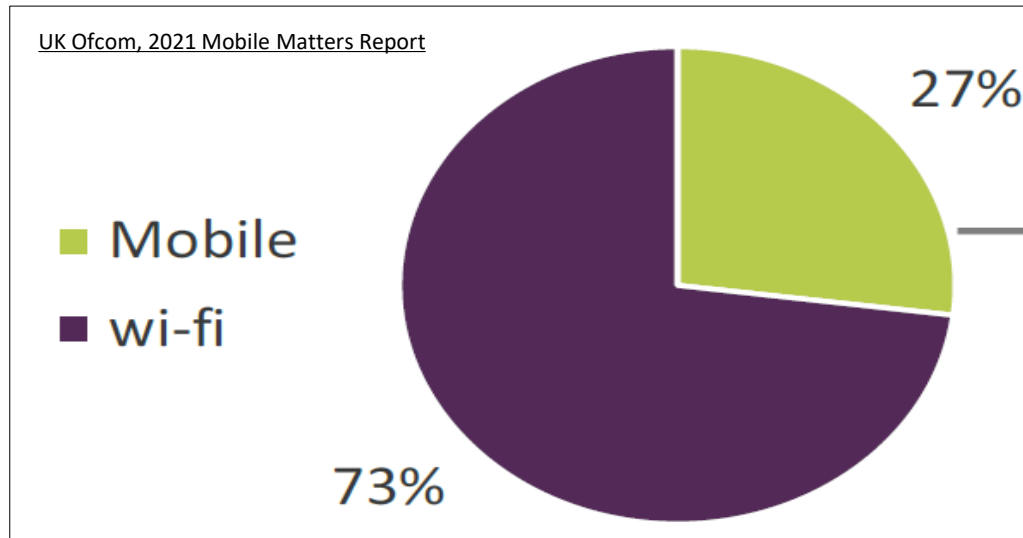
- Wi-Fi is the preferred wireless access technology for indoor/enterprise
- 5G mostly used for outdoor coverage



From 2G to 3G to 4G to 5G: Traffic Offload to Wi-Fi continues to grow

UK Ofcom's 2021 Mobile Matters Report:

- “Seventy-three per cent of data connections were made over wi-fi rather than a cellular network, with no significant differences by rurality or nation.”
- “Nearly three-quarters of data connections were made over wi-fi rather than a mobile network (2G, 3G, 4G or 5G) during the research period.”

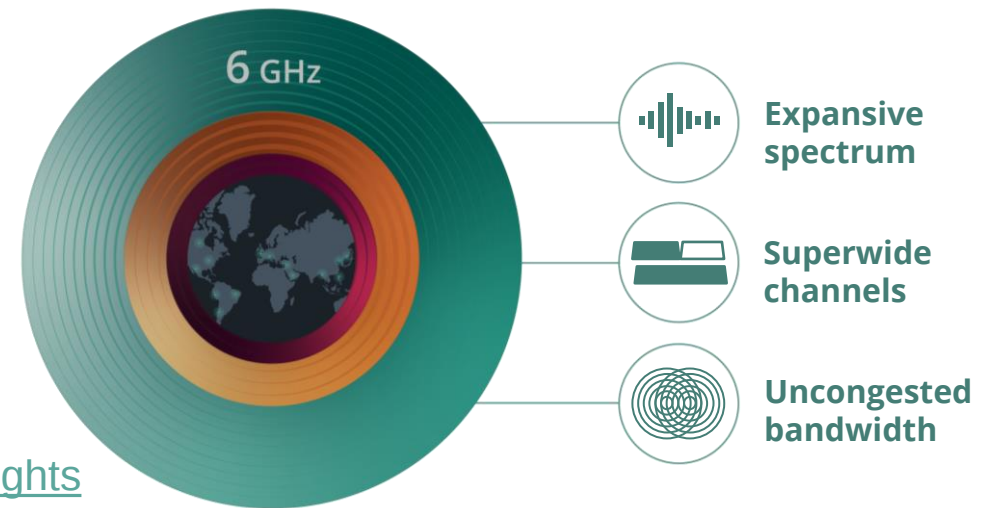


Upshot:

Increased data traffic and number of active
devices exhaust spectrum capacity
accessible to Wi-Fi
causing performance degradation when it is
needed most

Good news: Global momentum is building around 6 GHz Wi-Fi

- 6 GHz [Decisions](#) -- transformative to Wi-Fi ecosystem
 - Over 60 countries already decided to open 6 GHz band for Wi-Fi; 20+ countries initiated proceedings toward opening 6 GHz band
- Wi-Fi industry galvanized to deliver [Wi-Fi 6E](#) technology and devices in record time
- [Wi-Fi 6E brings](#):
 - Better speed, capacity, and latency
 - Quality in demanding environments
 - Advanced connectivity experiences
 - Tailored power consumption for IoT
 - New innovative possibilities



[Wi-Fi 6E highlights](#)

[Wi-Fi 6E video](#)

Wi-Fi Alliance®

Wi-Fi 6E progress

- 350M Wi-Fi 6E devices will ship in 2022
- 58M Wi-Fi 6E APs will ship in 2022
- Wi-Fi 6E will be 11% of global Wi-Fi 6 device shipments in 2022
- Eighty three percent of surveyed companies have deployed or plan to deploy Wi-Fi 6 or Wi-Fi 6E before the end of 2022
- Fifty eight percent of these companies said that 6 GHz was critical or very important to their strategy
- [Wi-Fi 6E home trials](#) report speeds of 1.7 Gbps downlink and 1.2 Gbps uplink
- [Turk Telekom Wi-Fi 6E trial](#) achieved a connection speeds of 2 Gbps and above with low latency



Source: IDC, WBA, CableLabs

Trends shaping future of wireless connectivity

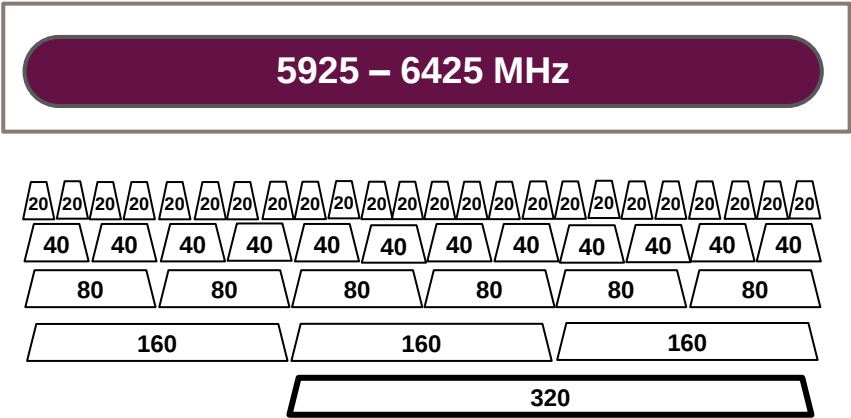
- Wireless Application Trends:
 - Immersive experiences (*Metaverse/6G*): such as VR/AR/XR, telepresence, immersive 3-D
 - Telehealth
 - Industrial IoT/Automation
 - Video streaming (8k video uncompressed data rate is 20 Gbps)
- Requirements Trends:
 - High-throughput, higher data rates
 - Stringent low-latency
 - Reliability and QoS
- Network Coverage Trends:
 - More localized
 - Short(er) range communications
- Local area networks (e.g., Wi-Fi) are the preferred wireless access technology for indoor and short-range
- Wide area networks (e.g., 5G) mostly used for outdoor coverage



Wi-Fi Connectivity Requires 1200 MHz in 5925-7125 MHz band



24 x 20 MHz
12 x 40 MHz
6 x 80 MHz
3 x 160 MHz
1 x 320 MHz



- Fact: Unlicensed technologies (e.g., Wi-Fi) relying on dynamic random spectrum access and contention-based protocols require access to multiple channels to maintain acceptable performance
- Fact: Next Generation [Wi-Fi 7](#) (IEEE 802.11be) designed for Extremely High Throughput -- channel bandwidth of up to 320 MHz
- Fact: 5925-7125 MHz frequency band is uniquely suited to meet growing demand for Wi-Fi connectivity – ***no alternative spectrum*** now or in the future



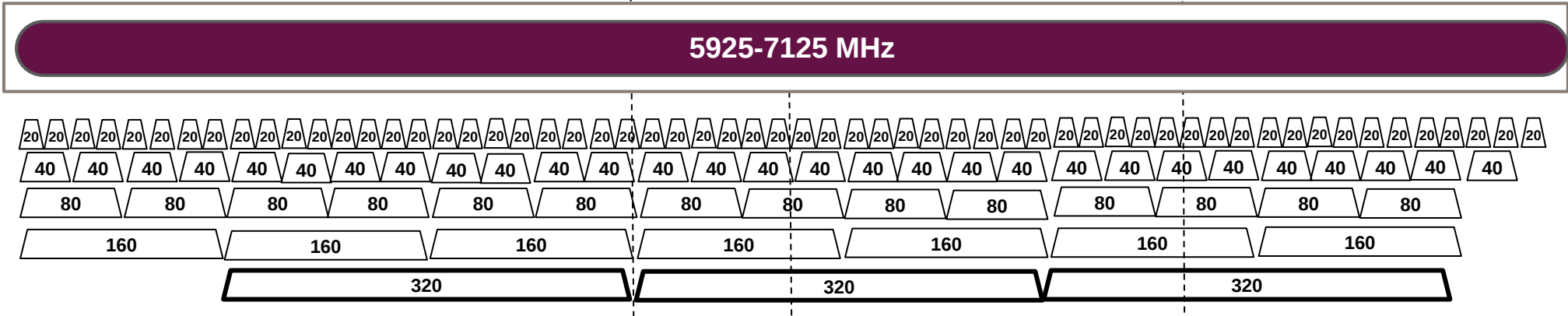
925 MHz

6425 MHz

6525 MHz

6875 MHz

7 125 MHz



Upshot: Spectrum Policy Drivers

- Spectrum Access and Sharing – impact on incumbent services, priority spectrum access requirements
- Equipment – cost, availability
- Network Complexity – installation, operation

Conclusions – considering 6 GHz approaches for UK

- Identification for IMT in 6425-7125 MHz will not deliver “expected benefits”
 - Global or even regional harmonization for IMT in 6425-7125 MHz is not feasible; Countries in all 3 Regions already deploying RLANs in 5925-7125 MHz;
 - Unlikely to result in actual IMT network deployments; Underutilized spectrum resource for years
 - **No alternative spectrum** to accommodate growing Wi-Fi ecosystem now or in the future; Impede introduction of Wi-Fi 6E, Wi-Fi 7 and beyond
 - Create confusion and regulatory uncertainty for incumbent services
- Wi-Fi ecosystem is meeting growing demand for connectivity and delivering significant socioeconomic benefits -- **today**
 - Wi-Fi 6E technology is available now (350 million Wi-Fi 6E devices will ship in 2022); state of the art wireless experience
 - Regulators worldwide are moving forward with RLANs in 5925-7125 MHz band (e.g., Brazil, Canada, Mexico, Saudi Arabia, S. Korea, US) (see www.wi-fi.org/countries-enabling-wi-fi-6e)

Thank you

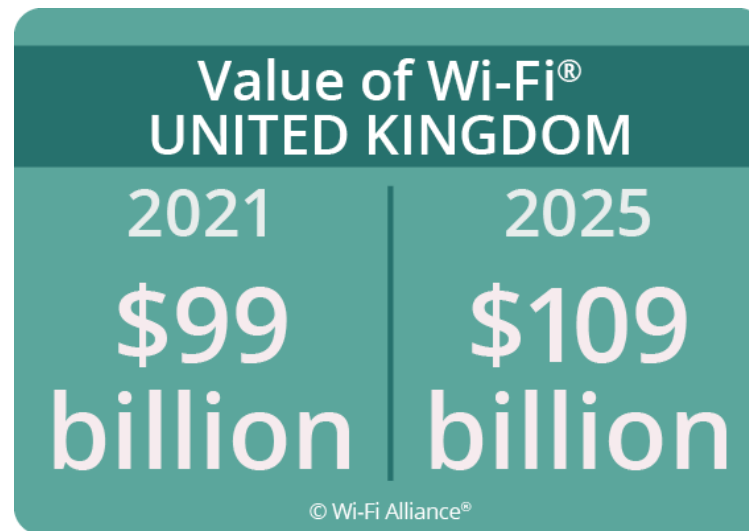
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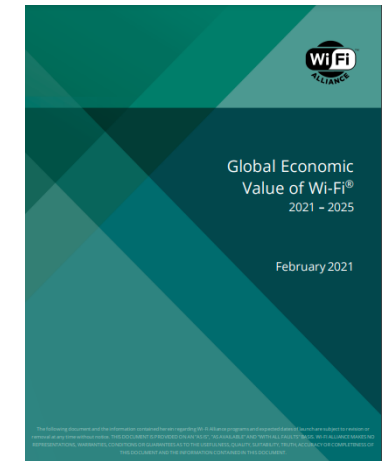
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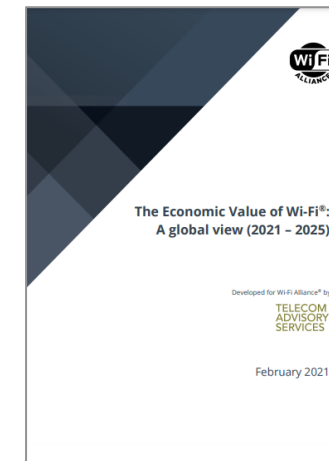
References



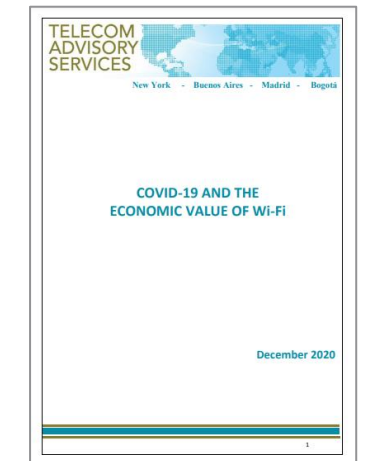
[Highlights sheet](#)



[Study summary](#)



[Study details](#)



[COVID-19 and Wi-Fi](#)