WInnForum International Spectrum Sharing Workshop

NTIA NSS Commenters Roundtable

June 2024

DYNAMIC SPECTRUM ALLIANCE

The [Dynamic Spectrum Alliance](#) (DSA) is a global, cross-industry, not for profit organization advocating for laws, regulations, and economic best practices that will lead to more efficient utilization of spectrum, fostering innovation and affordable connectivity for all.

Different technologies are available for broadband connectivity

Spectrum Management requires a holistic vision:

Demand/behavior-led and driven by government's socio-economic objectives
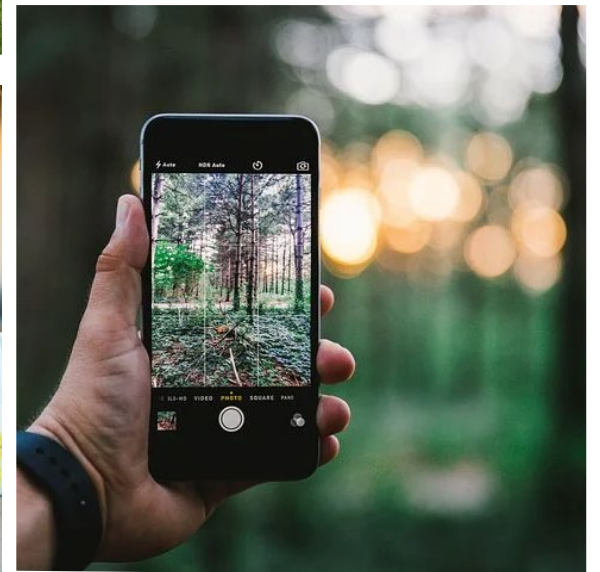
- DSA advocates for the adoption of shared spectrum models to enable the most <u>efficient and effective</u> use of spectrum globally

  ✓ Low- and mid-band spectrum bands are valuable and scarce
    ✓ Spectrum clearing is complicated, expensive, and takes too long
    ✓ Spectrum sharing is a proven, effective way to access spectrum immediately

  ✓ Incumbent services can be protected using database and location identification technologies
    ✓ DSA Research report [here](#)
    ✓ Where sharing is possible, alternative regulatory frameworks should be considered

  ✓ Unlicensed and lightly licensed approaches enable new competitive services and private wireless networks
    ✓ WISPs, industrial users (verticals, IoT, utilities…), and other innovative new uses

  ✓ Increases competition and expands the broadband ecosystem

WRC-23: 6 GHz band for WAS/RLANs (Wi-Fi)?

- The use of the 6 GHz band for WAS/RLANs aligns with the results of the Conference and the Radio Regulations.

- Notes 5.457E and 5.457F explicitly say that the 6 GHz frequency bands are being used for the implementation of WAS/RLANs (i.e. Wi-Fi).

☑ **EXCELLENT**

☐ **GOOD**

☐ **AVERAGE**

- WRC-23's backing of the use of WAS/RLANs in the 6 GHz band across the world is a significant win for the long-term prosperity of Wi-Fi as the industry prepares for the move to Wi-Fi 7.

- >2000+ 6 GHz-enabled Wi-Fi devices have launched on all major smartphone and laptop operating systems.

WRC-27 Studies

- No Future Agenda Item related to the 6 GHz band. It was decided to move forward with new bands.

- New Agenda Item for WRC-27 (Resolution COM6/26):

    "1.7 to consider studies on sharing and compatibility and develop technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4 400-4 800 MHz, 7 125-8 400 MHz (or parts thereof), and 14.8-15.35 GHz taking into account existing primary services operating in these, and adjacent, frequency bands, in accordance with Resolution COM6/26 (WRC-23);"

Region 1	Region 2	Region 3
Bands under study for WRC-27 (IMT): • 4 400-4 800 MHz (or parts thereof); • 7 125-7 250 MHz • 7 750-8 400 MHz (or part thereof); • 14.8-15.35 GHz	Bands under study for WRC-27 (IMT): • 7 125-8 400 MHz (or parts thereof); • 14.8-15.35 GHz	Bands under study for WRC-27 (IMT): • 4 400-4 800 MHz (or parts thereof); • 7 125-8 400 MHz (or parts thereof); • 14.8-15.35 GHz

Considerations on the Implementation of the U.S. National Spectrum Strategy

NSS I-Plan Timeline

- To meet growing demand in a timely manner, the DSA strongly urges NTIA to begin immediately to "modernize spectrum policy and make the most efficient use possible of this vital national resource" by leveraging proven innovative licensing frameworks and dynamic spectrum management system (DSMS) tools and technologies.

- By harnessing the knowledge and experience that have made spectrum sharing a success in the Citizens Broadband Radio Service (CBRS) and 6 GHz bands, NTIA can expedite, streamline, and expand access to additional frequencies that are critical to U.S. industrial competitiveness, national security, and digital inclusion.

- Given the historical success of the variety of spectrum sharing techniques in different bands designed to protect different incumbents, the DSA is of the view that there is no one size fit all solution to spectrum sharing. On the contrary, better results are achieved when sharing mechanisms are tailored to the characteristics and deployment conditions of the federal and commercial incumbents of each band.

NSS Pipeline

- Of the bands NTIA has identified in the NSS pipeline, the DSA believes the following studies should be prioritized:
  - Lower 3 GHz (3.1-3.45 GHz)
  - 7 GHz (7125-8400 MHz)
  - Lower 37 GHz (37.0-37.6 GHz)

- The DSA encourages NTIA to accelerate commercial access to these bands by leveraging existing proven DSMS solutions and adapting them to the challenges of each band.

- For example, DSA recommends that NTIA begin work at once to collaborate with commercial DSMS solution providers on a coordination framework to facilitate spectrum sharing building on the work already done as part of the Emerging Mid-band Radar Spectrum Study (EMBRSS) and the experience gained from sharing in the CBRS band.

Sharing technologies are already available

- DSMS solutions similar to those that enable sharing in the CBRS band can be adapted to allow sharing of the Lower 3 GHz band.
  - Sensing (e.g., the CBRS ESC)
  - Scheduling portals
  - Other automated notification systems
  - Combined with existing Spectrum Access System (SAS) software capabilities to protect existing systems.

- Existing DSMS solutions can also be readily adapted the Lower 7 GHz band.
  - Commercial unlicensed low-power indoor and very low power devices can share the 7125-7250 MHz band with Federal incumbents applying the rules the FCC has already approved for the 6 GHz band.
  - Standard power operations under the management of an Automated Frequency Coordination (AFC) system are also possible.

- Lower 37 GHz band is relatively greenfield, but a DSMS solution based on adaptation of CBRS SAS and 6 GHz AFC techniques could be straightforward and implemented quickly to facilitate more intensive use of the band by both federal and commercial users.
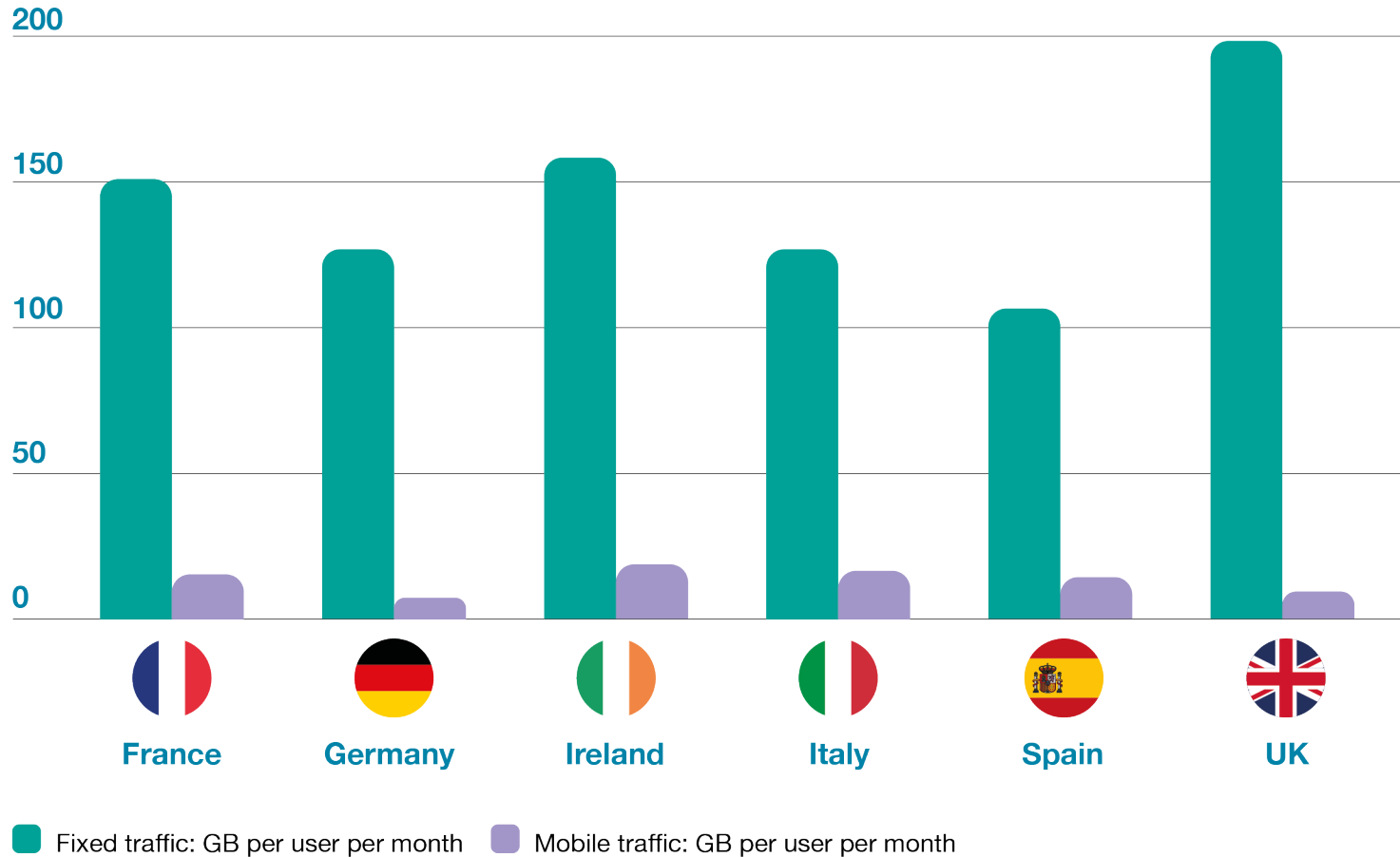
Considerations on
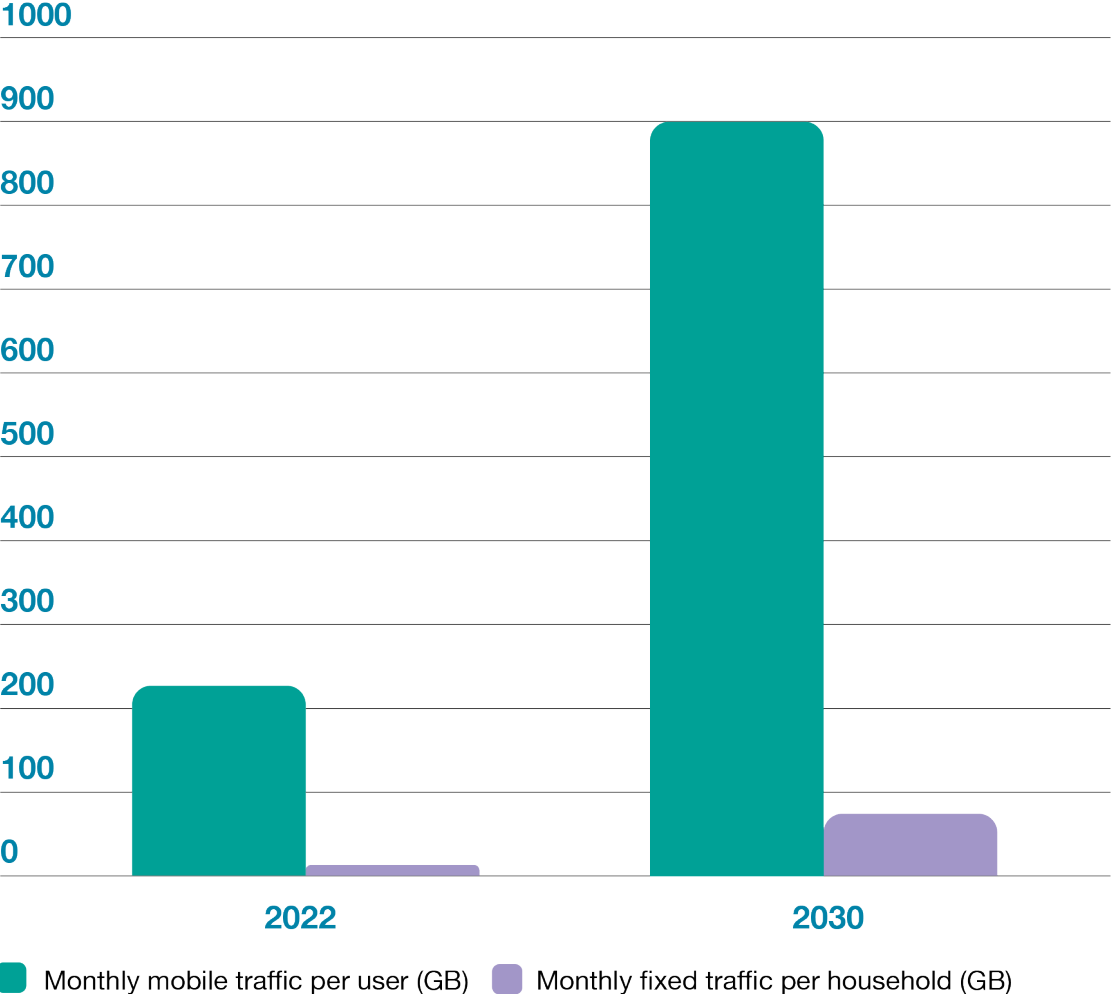# Broadband Connectivity in Europe

The vast majority of traffic travels on fixed networks

Wi-Fi is the wireless gateway for fixed networks to users inside houses, buildings and campuses

92%

of fixed broadband traffic in Europe is via Wi-Fi

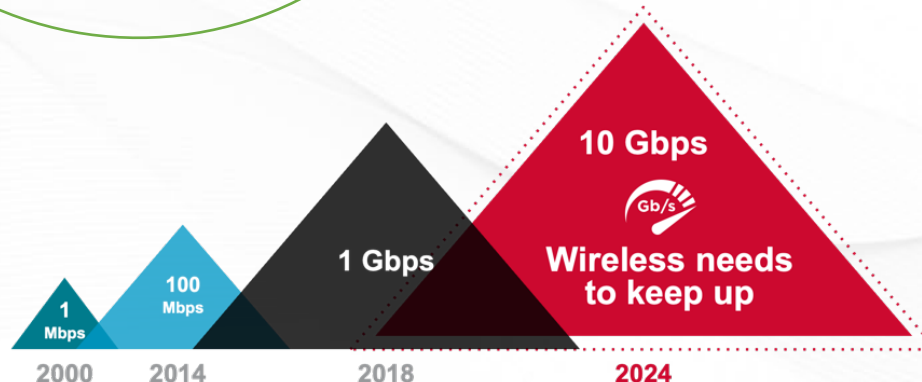■ Fixed traffic: GB per user per month   ■ Mobile traffic: GB per user per month

France   Germany   Ireland   Italy   Spain   UK

Source: reports published by national regulatory authorities (most recent figures available).

Fixed traffic is growing much faster than mobile traffic

Monthly mobile traffic per user (GB)   Monthly fixed traffic per household (GB)

Absolute growth in fixed data traffic will be almost

5x

that of mobile data traffic between 2022 and 2030

Pan-Europe averages. Source: Arthur D Little

2030: A society relying on Fiber

Every household in Europe will have (access to) multi-gigabit fibre connectivity

- FTTH Council Europe forecast ~196m FTTH Subs for EU39 in 2028 (63.5% of Subs over Homes Passed)

PON will be mainstream, with 25G/50GPON available (Source: FTTH Forecast for EUROPE 2022-2027)

Evolution of FTTH/B Homes Passed (million)
Comparison EU27+UK / EU39

FTTH/B Homes Passed - EU39   FTTH/B Homes Passed - EU27+UK

10 Gbps
Gb/s
Wireless needs to keep up

1 Gbps

100 Mbps

1 Mbps

2000   2014   2018   2024

DSA
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www.dynamicspectrumalliance.org
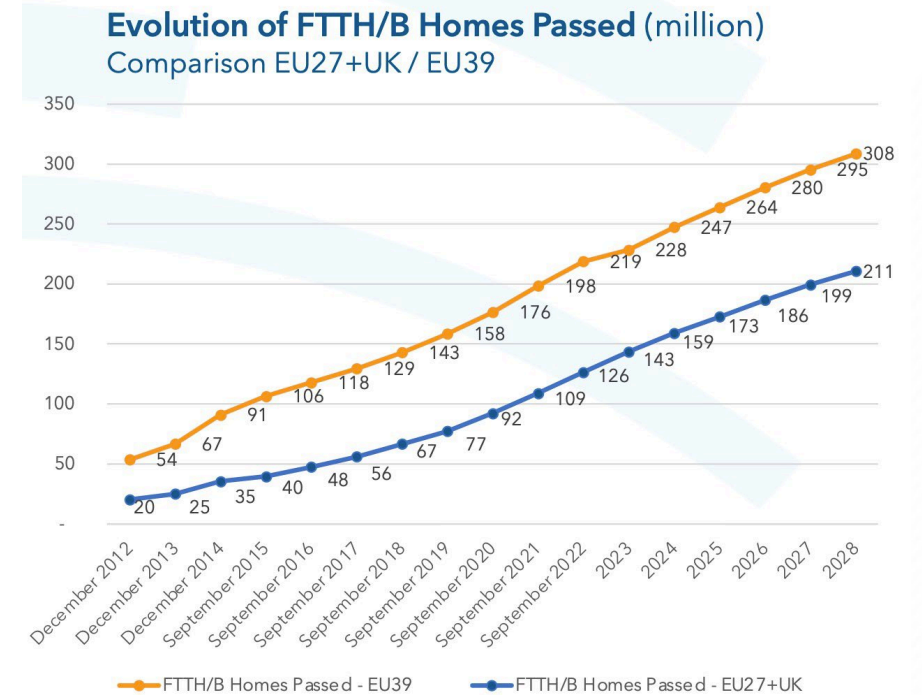
Principles for 6G: Open & Resilient by design

- Trusted Technology

- Open and Interoperable Innovation

- Secure, Resilient, and Protective of Privacy

- Affordable, Environmentally Sustainable, and Globally Connected

- Spectrum, Novel Materials, Manufacturing

- Standards & International Collaborations

Spectrum:

- Wireless communication systems that have access to licensed, unlicensed, and shared spectrum.

- Wireless communications systems that efficiently make use of frequencies, are dynamic and able to effectively share spectrum, and are resistant to interference.

Spectrum Management Considerations

- DSA supports broadband connectivity for everyone, and 6G will be a part of it.

- For IMT-2030 to be successful it must interoperate with other forms of broadband technologies.

- These technologies will require access to licensed, unlicensed, and shared spectrum.