Enabling Wi-Fi in 6 GHz

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Agenda

The importance of Wi-Fi

The need for more spectrum

The regulatory process

Conclusions and way forward

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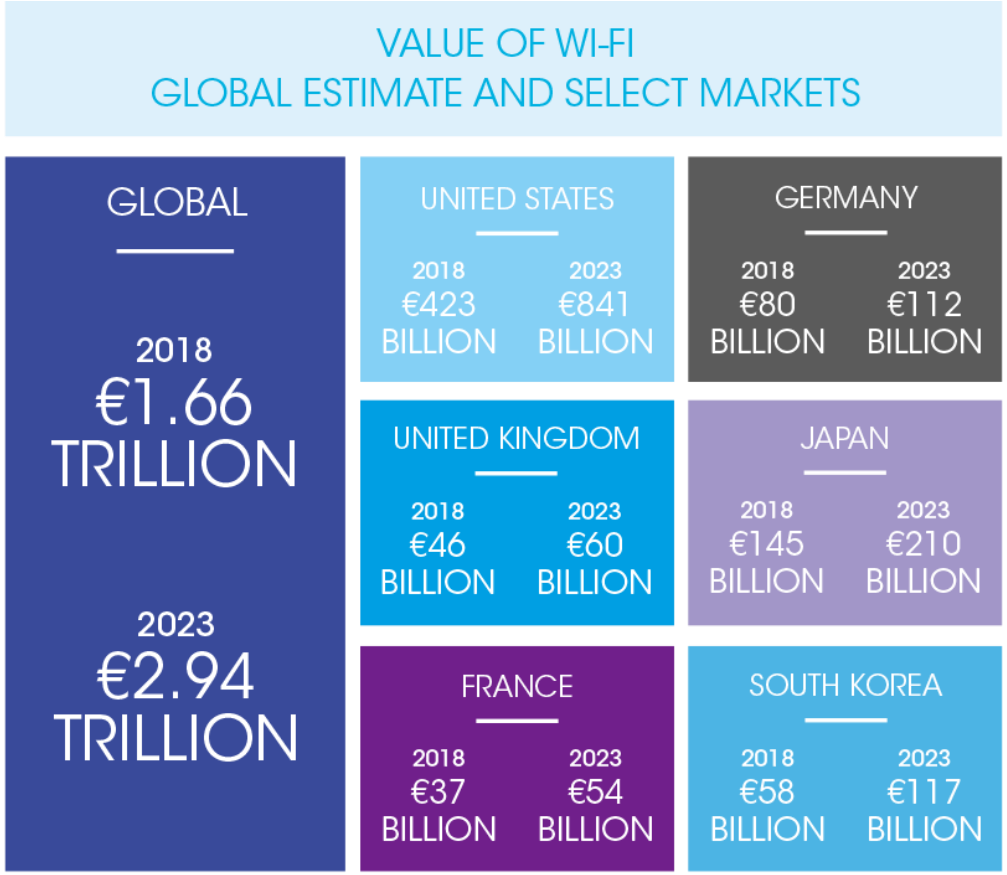
Wi-Fi is key to economic growth and societal development

- As reliable broadband connectivity becomes more important than ever, high performance Wi-Fi is a vital driver of economic growth.
- In the wake of the COVID-19 pandemic, citizens, businesses and governments are relying on Wi-Fi to remain connected with colleagues, teachers, healthcare professionals and other vital services.
- In-home Wi-Fi is helping limit the economic and societal damage caused by the pandemic.



Source: Telecom Advisory Services, 2018

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Wi-Fi is key to connectivity

- Wi-Fi can play a central role in helping governments to meet their connectivity goals.
- For individual citizens, Wi-Fi is often the most cost-effective way to get online, enabling them to make extensive use of Internet-based services without incurring hefty charges. As a result, citizens are happier and more productive.
- Wi-Fi is the distribution mechanism of choice for consumer broadband in most countries. If a Wi-Fi bottleneck means consumers experience low data speeds, there is not much point in having a fast broadband connection.

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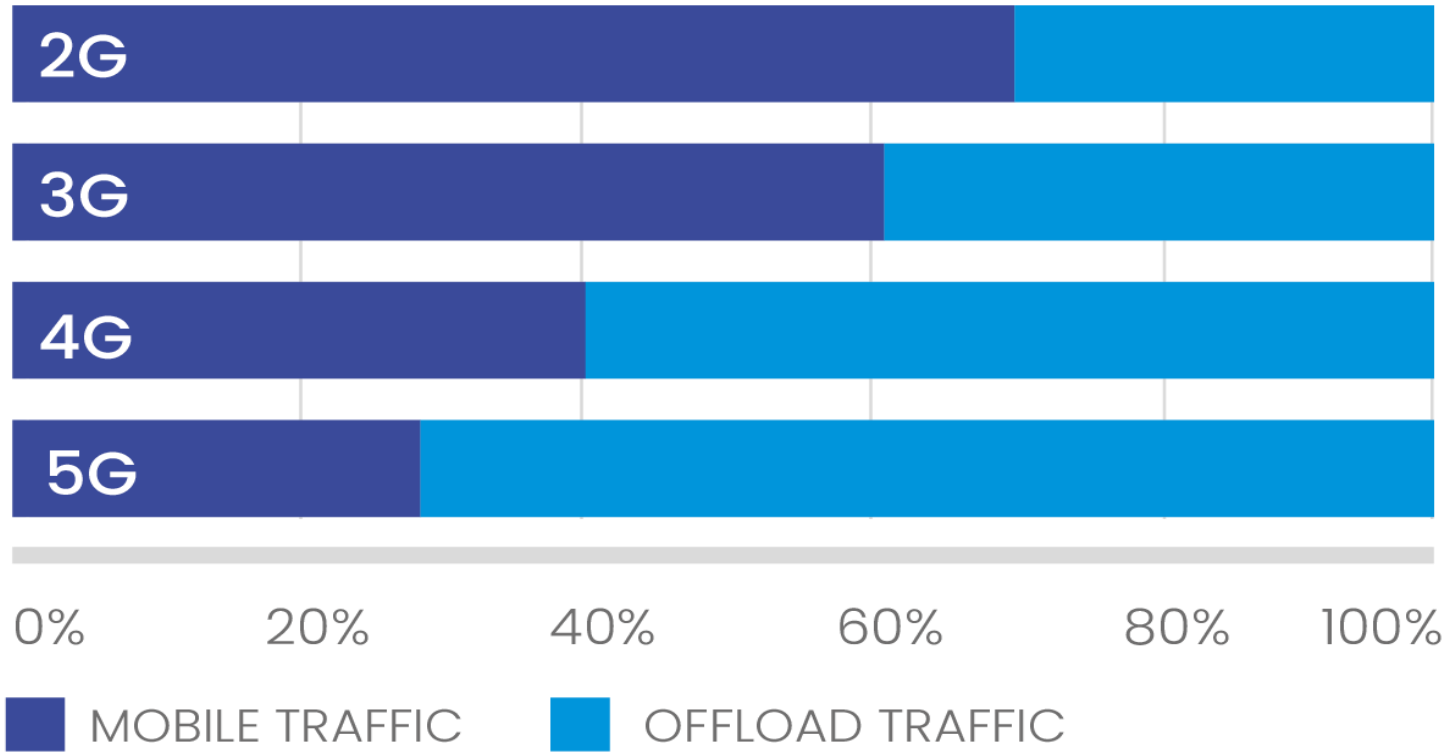
Wi-Fi works hand-in-hand with cellular

Today, Wi-Fi supports the offload of 54% of mobile data traffic and this is set to grow to about 70% with 5G (source: Cisco VNI).



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Wi-Fi 6E offers a step change in performance

MORE, CONTIGUOUS SPECTRUM

GIGABIT SPEEDS

WIDER CHANNELS

VERY RESPONSIVE CONNECTIVTY

LESS INTERFERENCE

HIGH CAPACITY & RELIABILITY

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Wi-Fi 6E and 4G/5G are complementary

- Without the ability to offload traffic to Wi-Fi, 4G/5G networks would be more expensive and broadband services would be less affordable: mobile operators would need to invest more in network densification, deploying many more small cells in dense urban areas to offer high-speed throughput.

- Wi-Fi 6E can support 4G/5G use cases, such as HD video streaming, Wi-Fi calling, smart home devices, hotspot access, automation of city-wide services, AR/VR applications, health monitoring devices, wearables and seamless roaming.

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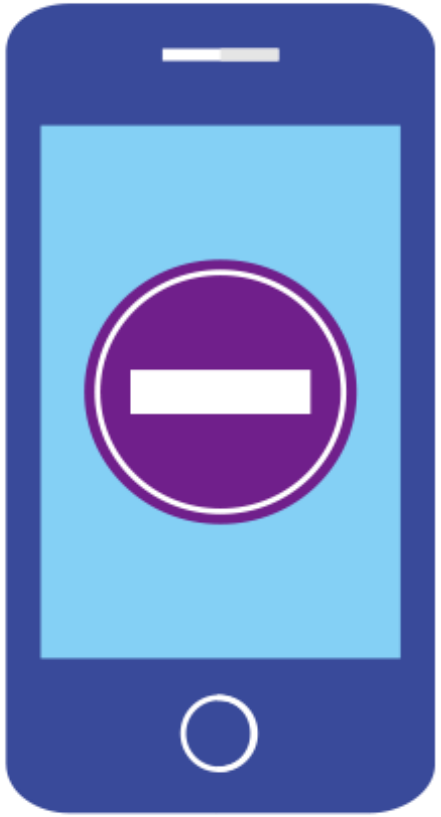
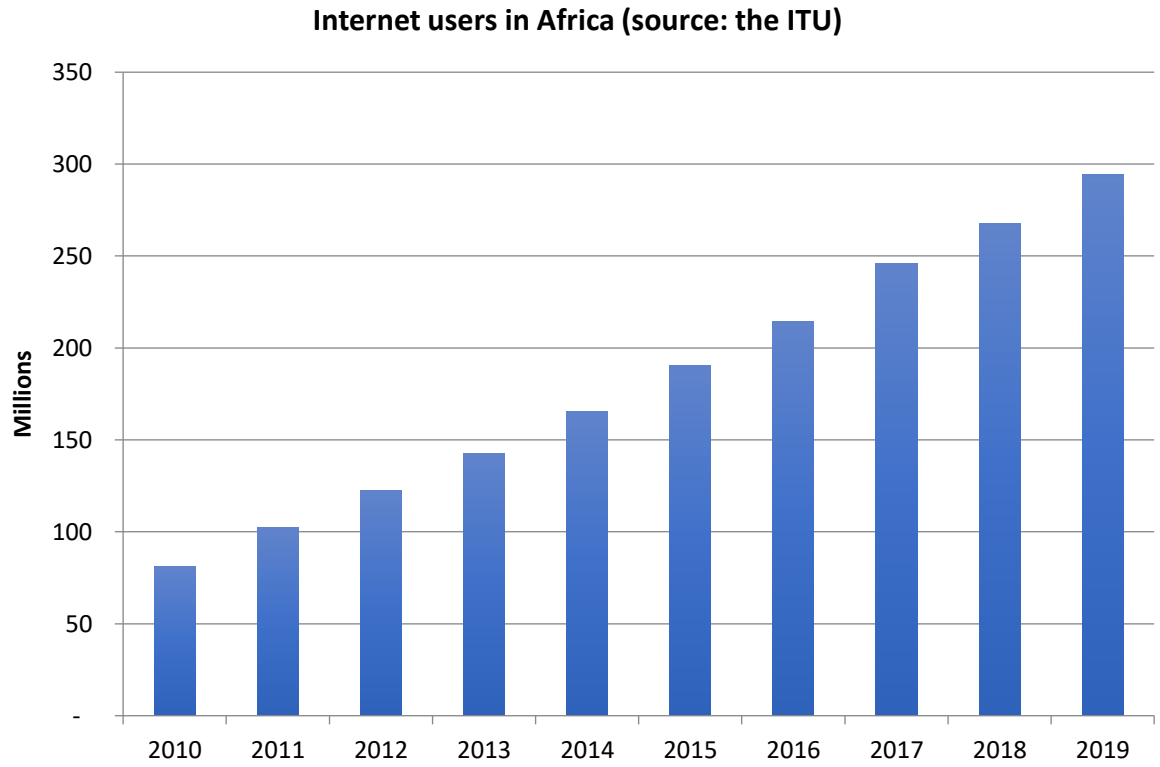
The shortage of license-exempt spectrum

- Telecoms operators are rolling out high-speed broadband networks, but the wireless interface is a bottleneck affecting the user experience.
- There is only 455 MHz of mid-band spectrum available for license-exempt use in ITU Region 1. In some countries, including the US and Canada, there is an additional 125 MHz available in the 5 GHz band (5725-5850 MHz).
- Since WRC-03, no new mid-band spectrum has been made available for Wi-Fi despite the exponential growth in the data traffic supported by the technology.



Growing demand for Wi-Fi in Africa

- The number of Internet users in Africa is growing rapidly and will continue to do so.
- The number of Internet users in the Middle East and Africa is now growing 10% a year, according to Cisco, meaning the region will have 611 million Internet users in 2023.
- Telecoms operators will need to use Wi-Fi to provide many of these new users with a high-quality experience.
- Unless action is taken, Africa faces a Wi-Fi mid-band spectrum shortfall.



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The 6 GHz band can bridge the spectrum gap

- The 6 GHz band (5925-7125 MHz) is well suited to bridging the Wi-Fi spectrum gap.
- Under ITU RRs, the 6 GHz band has a co-primary mobile allocation – it could be used for all mobile service applications on a licence-exempt basis.
- Wi-Fi service providers can use existing 5 GHz infrastructure to extend coverage at 6 GHz.
- Having access to additional spectrum allows for wide 160 MHz channels and therefore exciting new services.

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Global momentum to open the 6 GHz band

- The FCC in the US has decided to allow low power indoor Wi-Fi across the entire 6 GHz band. It noted that Wi-Fi and other unlicensed technologies “have become indispensable for providing low-cost connectivity in countless products”.

- The UK regulator Ofcom has announced it will make the lower 6 GHz band available for Wi-Fi and other RLAN technologies, noting that people and businesses are increasingly using Wi-Fi to support everyday activities.

- Other jurisdictions, such as Brazil, South Korea, Taiwan, Singapore, Mexico, Japan, Canada and Australia, are also working towards making parts of the 6 GHz band available for Wi-Fi use.

- The EU and some countries in the Middle East are preparing to make the lower 6 GHz (5925-6425 MHz) band available to licence-exempt technologies.

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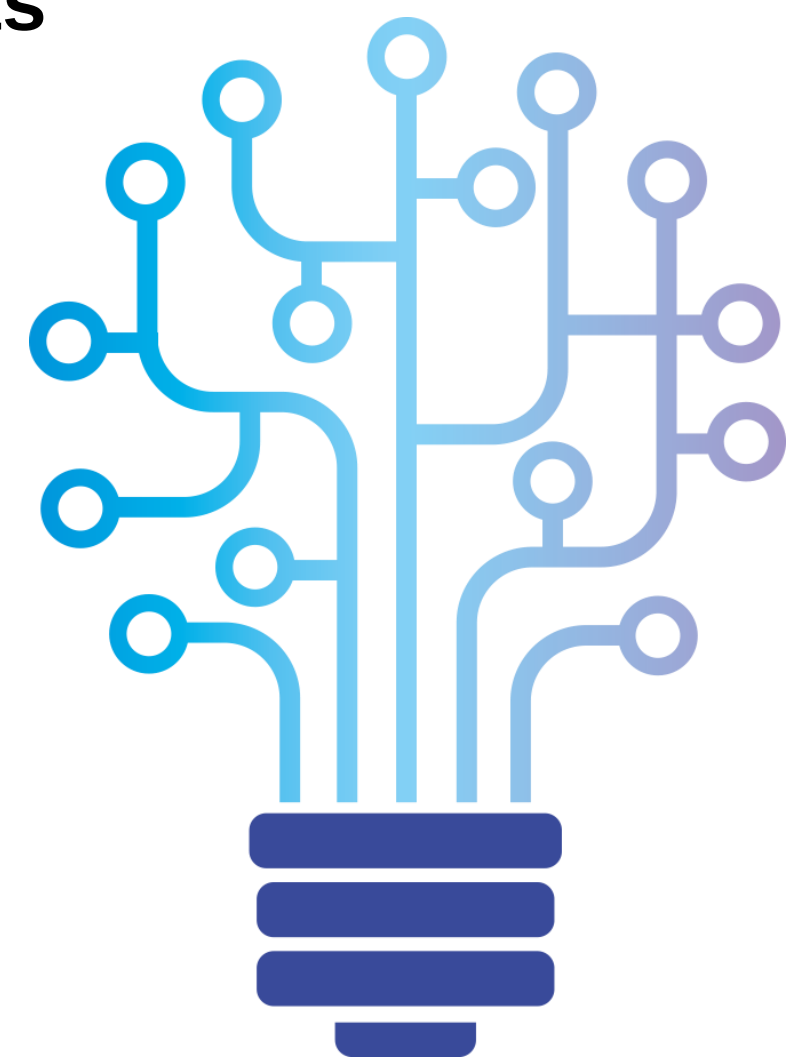
More spectrum for Wi-Fi would lower costs

- If the 6 GHz band were widely available on a license-exempt basis, vendors would be able to deliver the same equipment to multiple regions.
- As a result, Wi-Fi users would benefit from greater economies of scale, lower prices and a more diverse supplier base.
- Widespread access to high-speed Wi-Fi – enabled by the availability of more spectrum – would bolster digital ecosystems and help drive innovation.



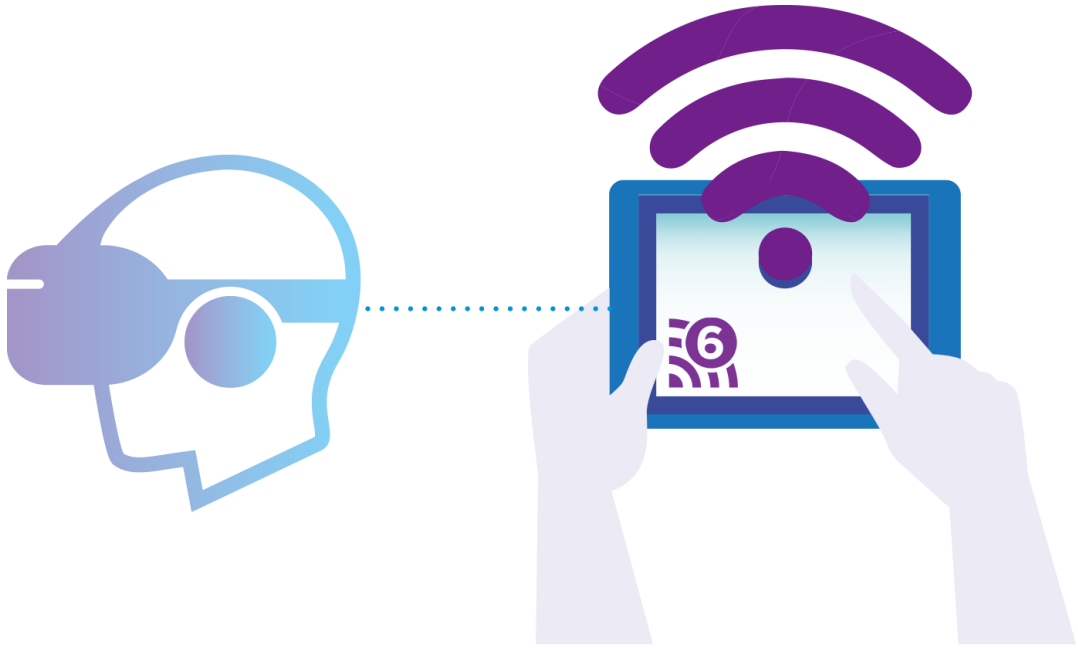
Wi-Fi 6E devices close to launch

- The first Wi-Fi 6E products, which can be used in the 6 GHz band, are set to be launched before the end of 2020.
- Research firm IDC has forecast* that more than 316 million Wi-Fi 6E devices will enter the market in 2021.
- Phil Solis, research director at IDC*: “We expect Wi-Fi 6E will gain momentum and see rapid 2021 adoption with more chipsets targeting flagship smartphones, PCs, TVs, and even VR devices.”

*As cited by the Wi-Fi Alliance

More spectrum for Wi-Fi would drive innovation

- Recent research in the US shows allowing Wi-Fi devices in the 6 GHz band will generate significant economic value by:
  - Improving connectivity indoors and outdoors
  - Extending the Internet of Things
  - Boosting productivity
  - Enabling development of richer applications and services



- With access to the 6 GHz band, low power indoor and very low power portable Wi-Fi can support demanding personal area network applications, such as transferring data between a smartphone and an AR/VR headset.

- Adoption of AR/VR by businesses will enhance productivity by improving training, accelerating product design and enabling new business models.

Time for national consultations on new licence-exempt spectrum

- Governments have a responsibility to make sufficient license-exempt mid-band spectrum available for Wi-Fi just as they make new spectrum available for cellular.
- Citizens and companies can then choose the technology that best meets the needs of the specific use case.
- Administrations in the Middle East and Africa should consider initiating national consultations on license-exempt access to the lower 6 GHz band (5925-6425 MHz).
- If countries across ITU Region 1 were to make the lower 6 GHz band available for use by license-exempt technologies, device suppliers would achieve economies of scale and reduce the cost of equipment for end-users.

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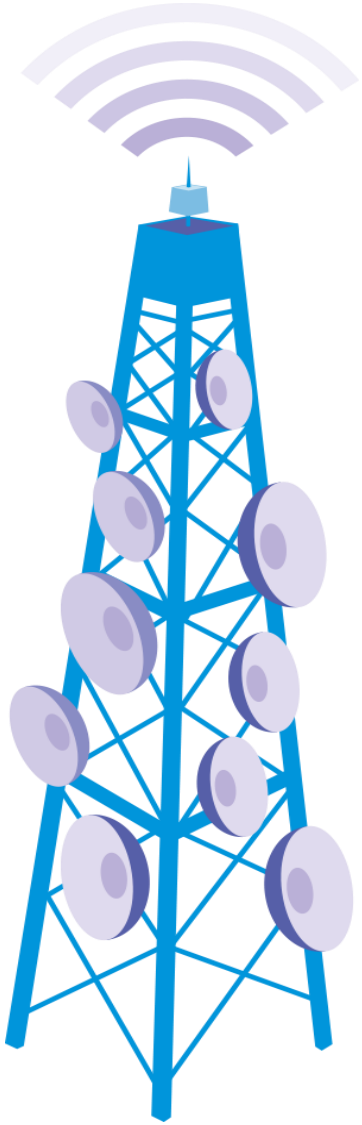
WRC-23 and the upper 6 GHz band

- If WRC-23 were to identify the upper 6 GHz band (6425-7125 MHz) for IMT (as per Agenda Item 1.2), that could prevent countries from maximising the potential of this important spectrum.
- The upper part of the 6 GHz band should be available to all licence-exempt technologies, including Wi-Fi and 5G NR-U.
- The primary Mobile allocation in the 6 GHz band should be retained (AfriSAP)
- If IMT networks were deployed in the upper 6 GHz band, there is a risk that they would interfere with fixed and fixed satellite links currently operating in that band due to their high power usage.

Alleviating the strain on 4G and 5G

- The availability of license-exempt spectrum across the 6 GHz band would make it easier for mobile operators to offload traffic to Wi-Fi.
- Operators could use License Assisted Access (LAA) or LTE assisted access to combine their licensed bands with 5 GHz and 6 GHz unlicensed spectrum to get more bandwidth for high capacity applications.
- In many cases, offloading such traffic will require Wi-Fi to employ 160 MHz or even 320 MHz channels.



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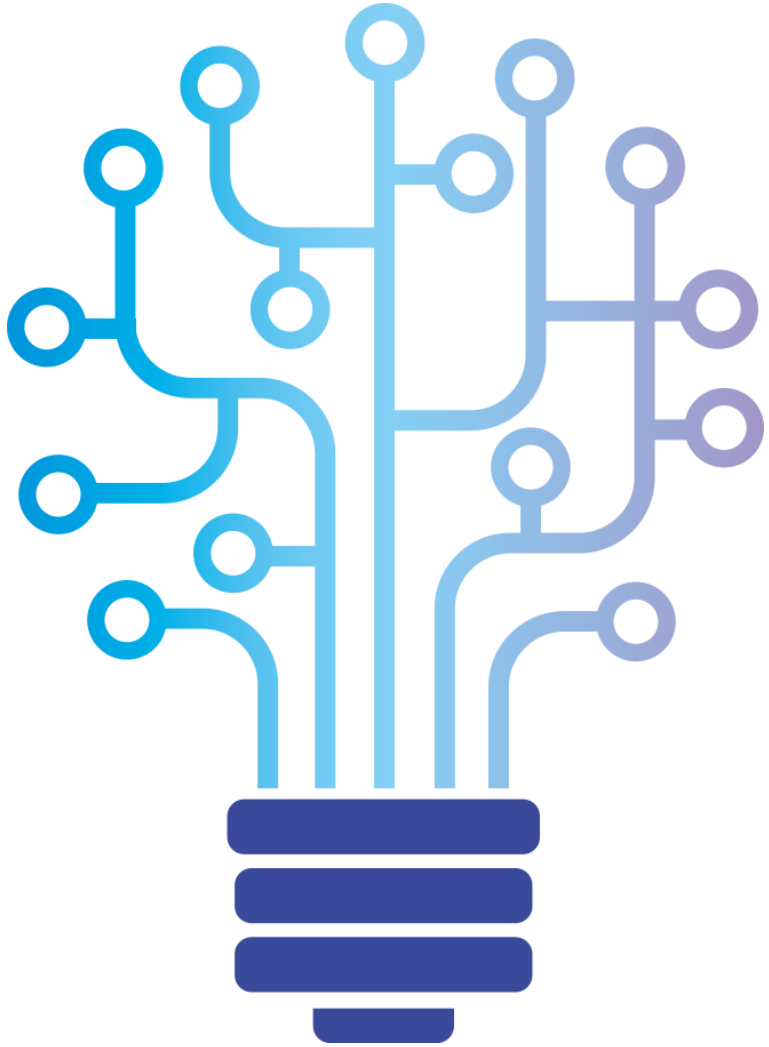
Maintaining technology neutrality

- Maintaining the current regulatory status quo in the upper 6 GHz band would allow for flexibility moving forward.

- License-exempt spectrum, which can be used by any wireless technology, promotes innovation and competition by lowering barriers to entry for small companies.

- If regulators allow for technical innovation, individuals and companies can choose the technology that best suits them and their specific use case.



Summary – now is the time to release more licence-exempt spectrum

- There is an urgent need for more Wi-Fi spectrum for consumers and industry.
- We are at a pivotal moment for the future of Wi-Fi.
- Policymakers in ITU Region 1 need to move now to open up the lower 6 GHz band for use by licence-exempt technologies.
- Admins also need to maintain the flexibility to enable licence-exempt technologies, such as Wi-Fi and 5G NR-U, to use the upper 6 GHz band.
- There is no need for an IMT identification in the upper 6 GHz band

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