

# Wi-Fi in 5G

CEPT Workshop on New Spectrum Solutions for Industry Sectors

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# Outline

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- About Wi-Fi Alliance®
- Role of Wi-Fi® in enabling 5G
  - Delivering high-performance connectivity
  - Supporting mobile offload
- Economic Value of Wi-Fi
- Wi-Fi Spectrum Requirements in Europe



# About Wi-Fi Alliance

# The worldwide network of companies that brings you Wi-Fi®



Effective global collaboration




800+ member companies



Constant evolution



Driving industry growth



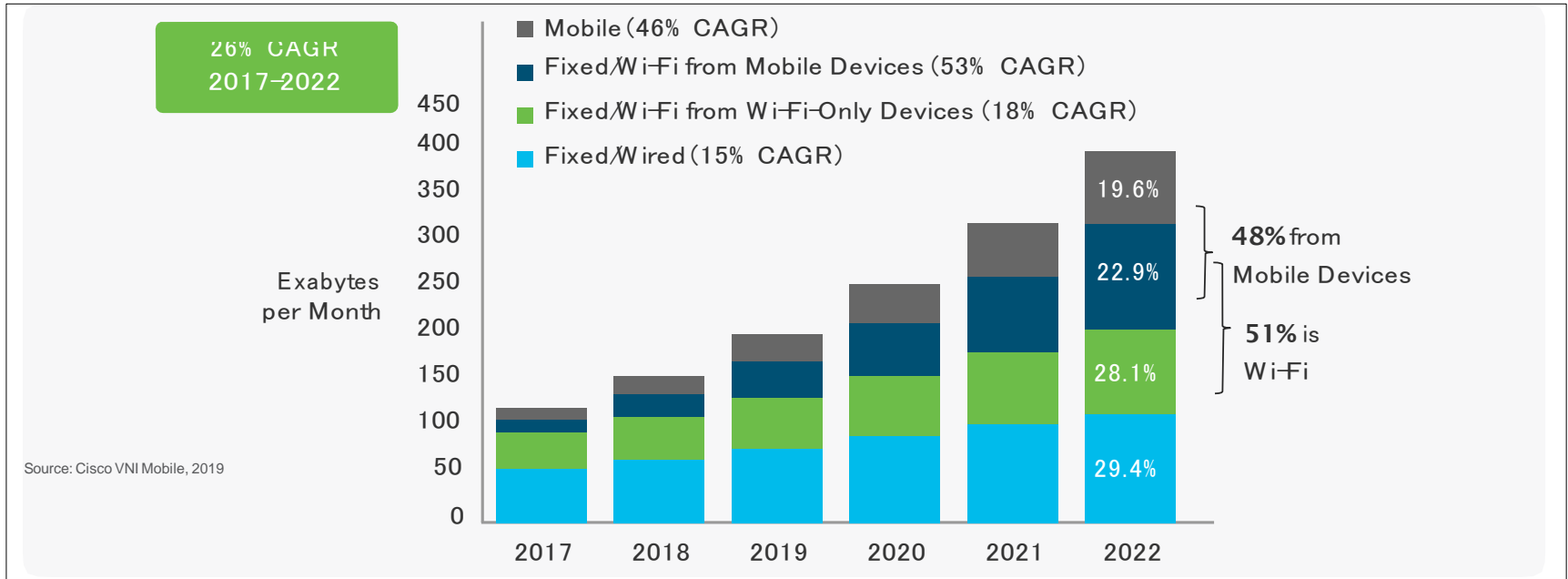
Wi-Fi Alliance Vision:  
Connecting everyone  
and everything,  
everywhere



# Role of Wi-Fi in enabling 5G

# Wi-Fi delivers high-performance connectivity

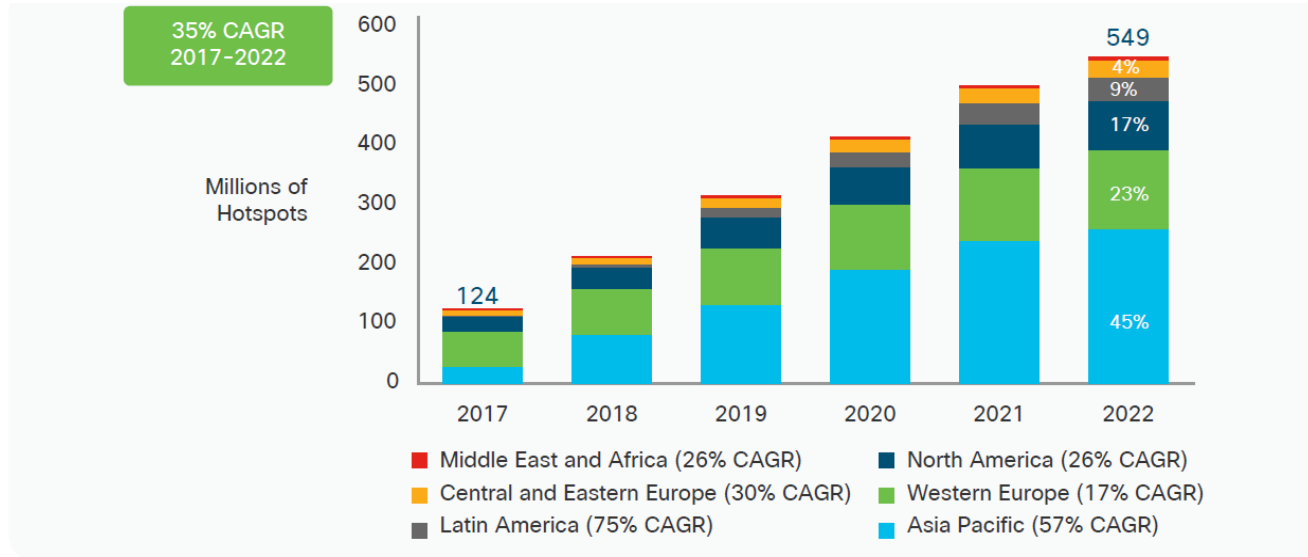
- Wi-Fi is expected to deliver over 50% of **all** IP data traffic by 2022
- Wi-Fi delivers **more than half** of all internet traffic today



IP Traffic by Access Technology

# Wi-Fi delivers high-performance connectivity

With existing deployment densities 25 times greater than those of small cells, Wi-Fi is the only readily available technology that comes close to delivering network capacity requirements envisioned for 5G (note [WiFi4EU initiative](#))



Note: \*Middle East and Africa represents 1 percent of global public Wi-Fi hotspots by 2022.  
Source: Maravedis, Cisco VNI Mobile, 2018

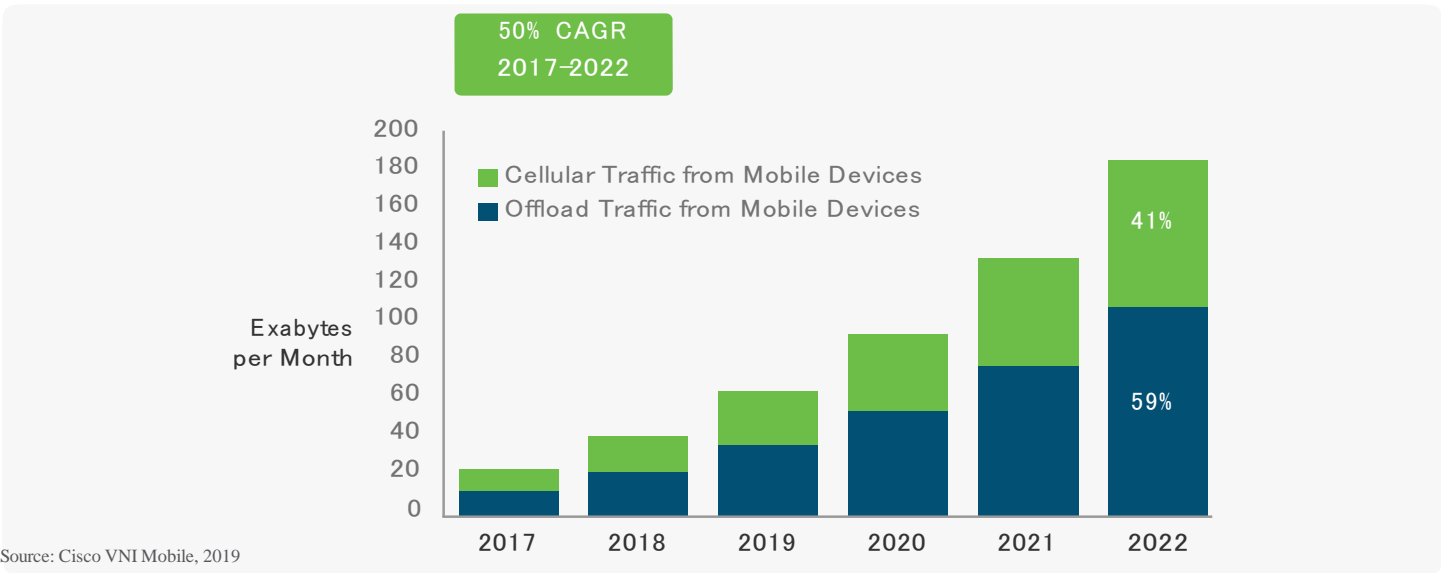
## Global Public Wi-Fi Hotspots



# Wi-Fi enables mobile offload

Offloading from expensive cellular networks on to lower-cost-per-bit Wi-Fi networks projected to grow

- In 2017: 54% of total mobile data traffic was offloaded through Wi-Fi
- In 2022: 59% of total mobile data traffic is projected to be offloaded through Wi-Fi

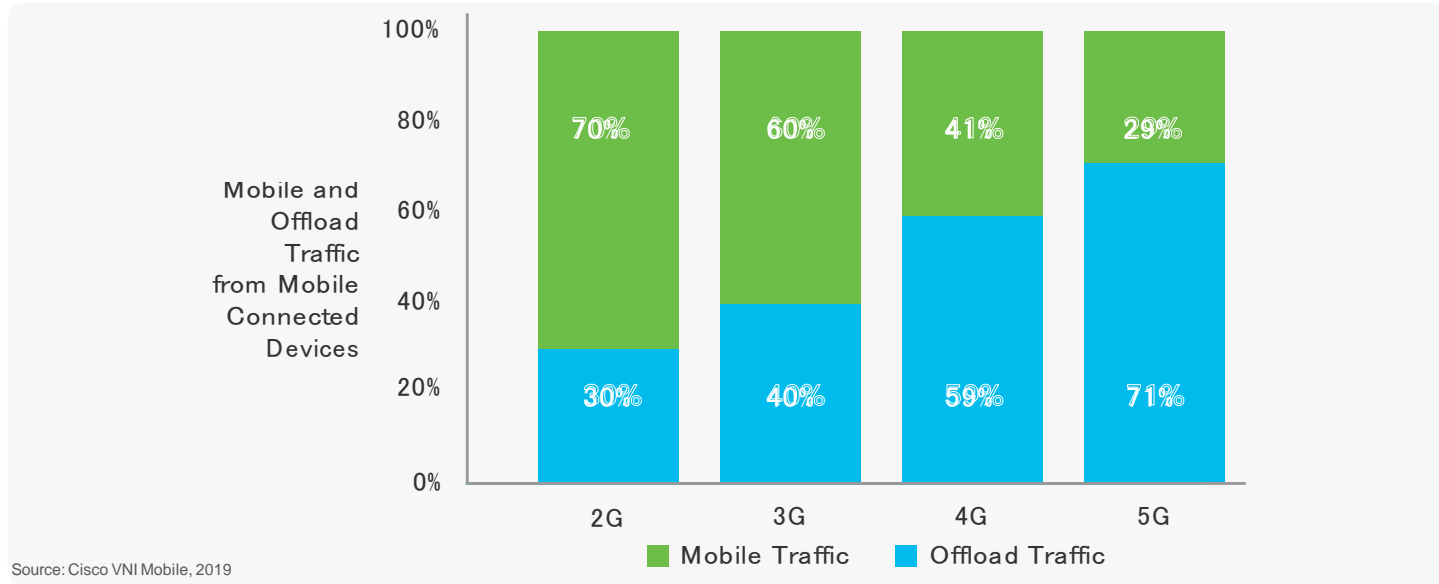


Source: Cisco VNI Mobile, 2019

**Global Mobile Data Traffic Offload to Wi-Fi**

# Wi-Fi enables mobile offload

- From 2G to 3G to 4G to 5G: Wi-Fi offload continuous to grow
- More than previous G's, 5G rollout depends on Wi-Fi availability

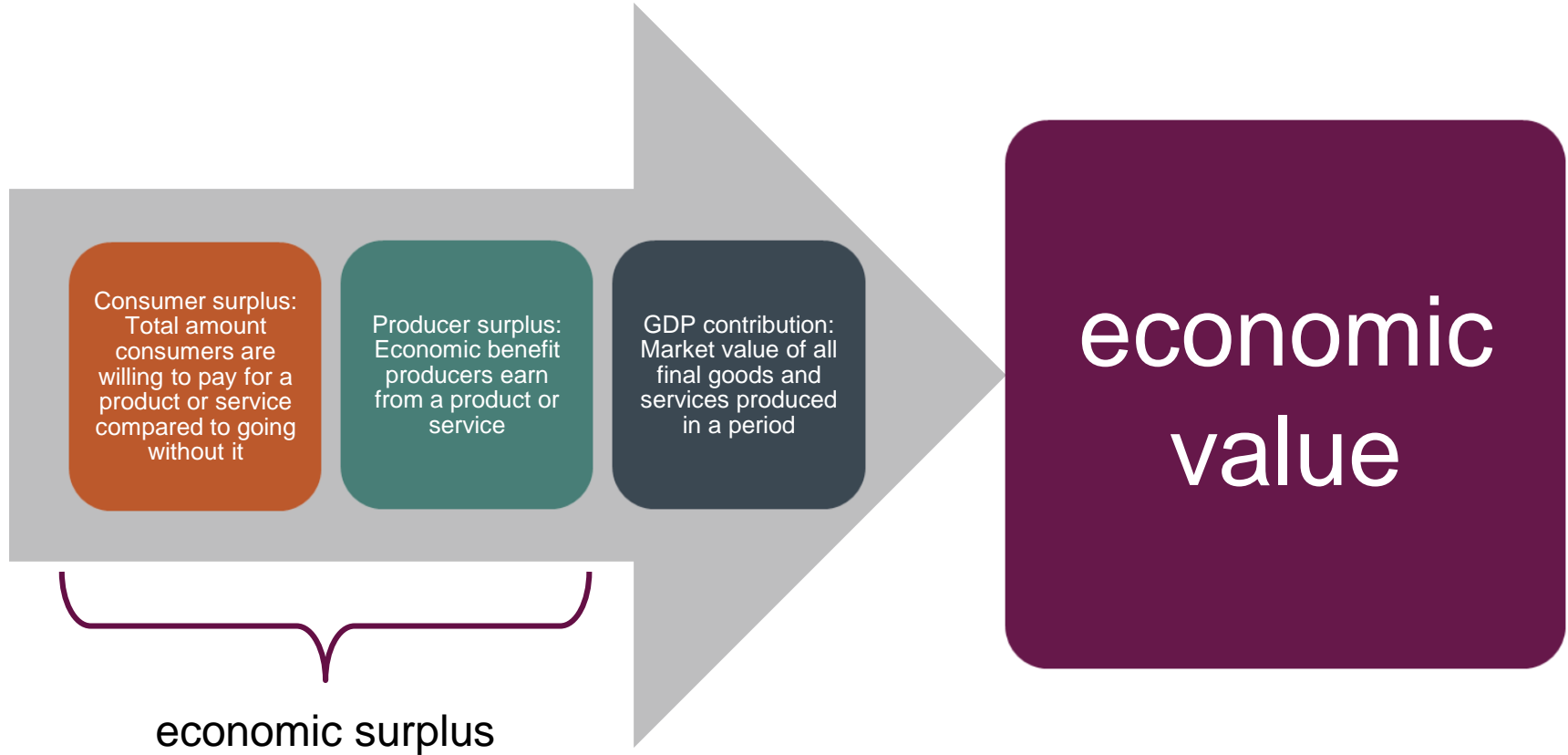


## Mobile Data Traffic and Offload Traffic, 2022



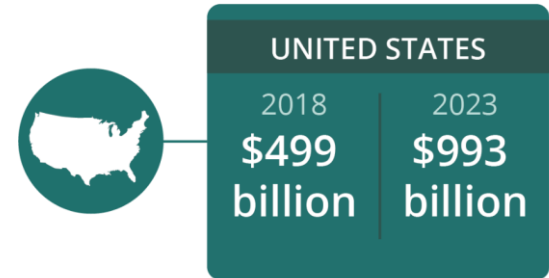
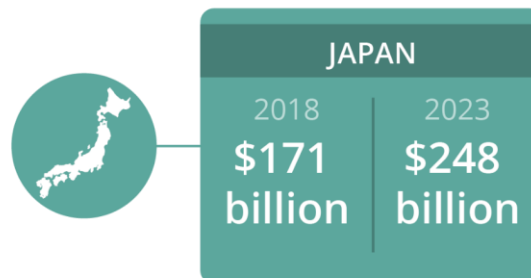
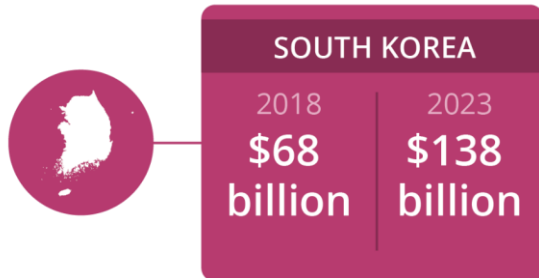
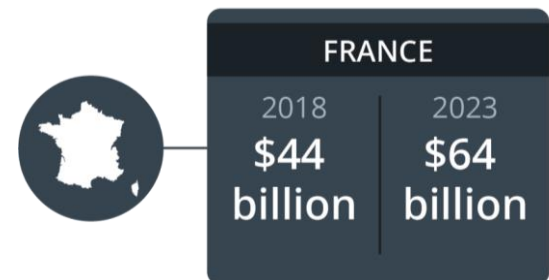
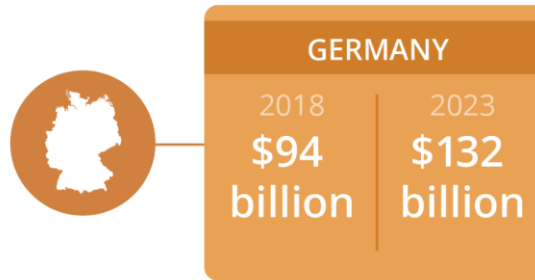
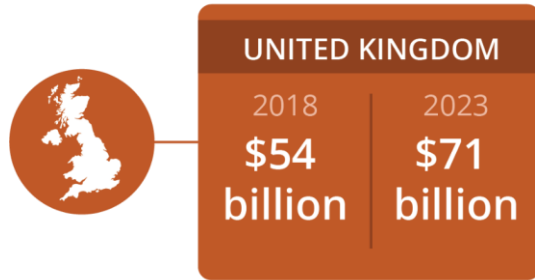
# Economic Value of Wi-Fi

# Components of Economic Value



# Six major economies studied...

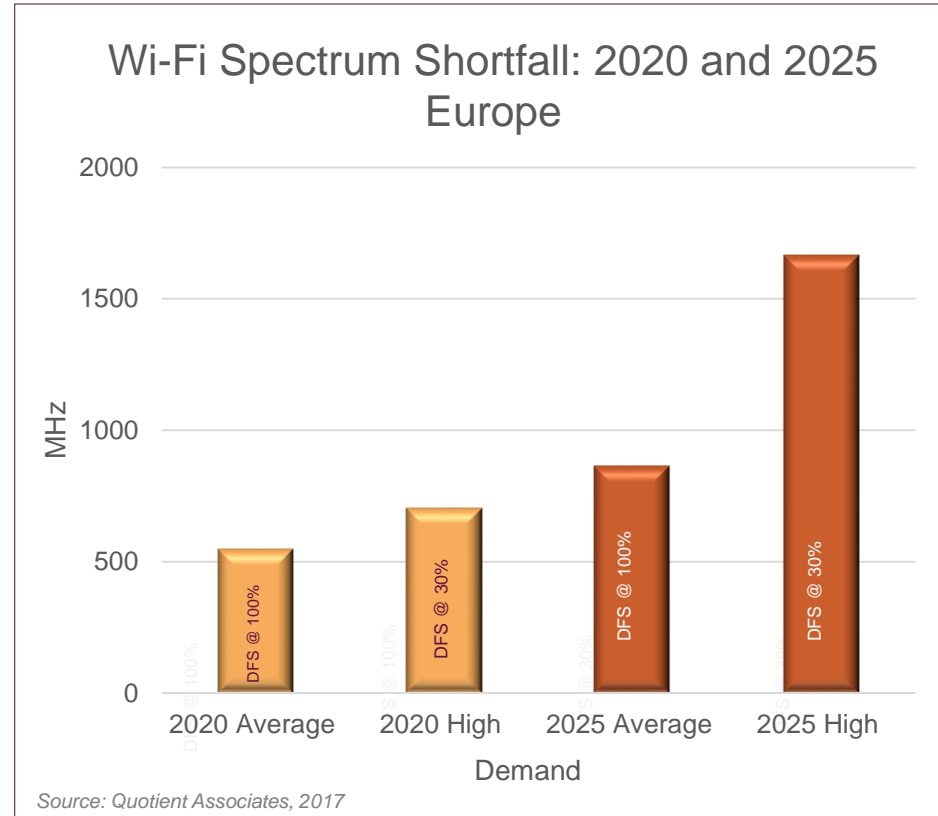
- Wi-Fi generated **\$2 Trillion USD economic value** in 2018 and rises to \$3.5 Trillion in 2023
- Full study is available at: [www.valueofwifi.com](http://www.valueofwifi.com)



# Wi-Fi Spectrum Requirements in Europe

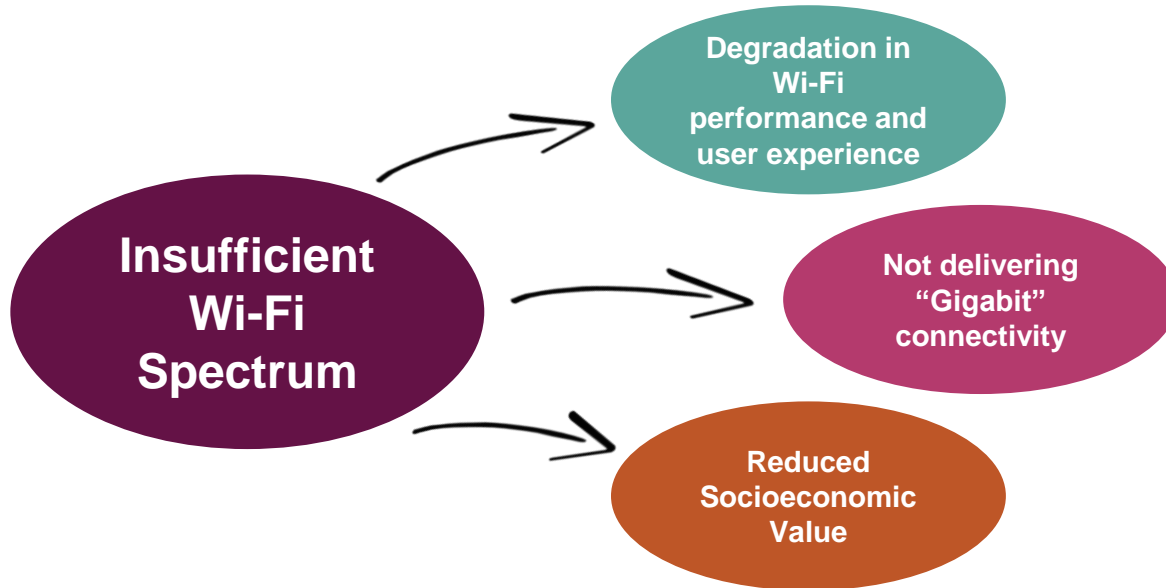
# Wi-Fi Spectrum Requirements in Europe

- While Wi-Fi evolved from a nascent technology to an integral component of telecom infrastructure, it continues to operate in a limited spectrum that was made available 20 years ago
- Wider Wi-Fi channels are needed to support higher data rates and lower latency applications
  - Video and VR today vs. text/email in 2000s
  - 80 MHz/160 MHz channels today vs. 20 MHz channels in 2000s
- Studies confirm: **currently available spectrum is insufficient to meet growing demand for Wi-Fi**
  - [Wi-Fi Alliance Study](#)



# Wi-Fi Spectrum Requirements in Europe

Wi-Fi is critical to delivering 5G and Gigabit Society objectives but spectrum congestion threatens Wi-Fi functionality and socioeconomic value



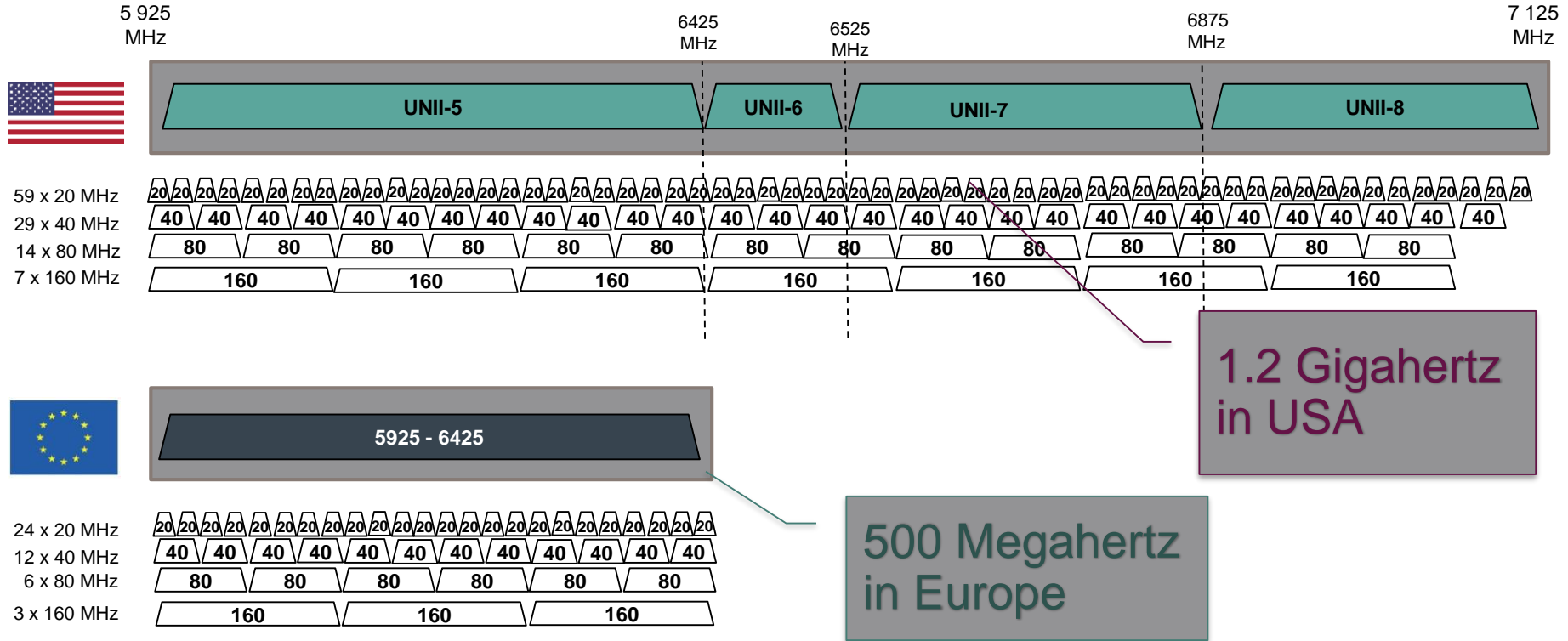


# Wi-Fi Spectrum Requirements in Europe

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- 6 GHz spectrum is uniquely suited to support next generation Wi-Fi ([Wi-Fi-6](#))
  - sufficient bandwidth for implementation of wider channels (e.g. 80/160 MHz)
  - already allocated to Mobile service worldwide (ITU Radio Regulations)
  - Existing 5 GHz radios could be readily extended to cover the 6 GHz range
  - Good potential for global harmonization
- Industry and policymakers are taking action to make additional spectrum available for Wi-Fi access
  - Industry carried out numerous technical analyses to confirm that sharing with existing users in 6 GHz spectrum is feasible
  - European Commission [Mandate](#) for Wi-Fi in the 6 GHz band
  - In a recently unveiled [5G FAST Plan](#), US FCC Chairman Pai emphasized the importance of making 6 GHz spectrum
  - US FCC [Notice of Proposed Rulemaking](#)

# Wi-Fi Spectrum Requirements in Europe



# **Wi-Fi is one of the dominant economic engines of the digital ecosystem**

*In the last 20 years, Wi-Fi technology performance has advanced by more than 100 times since its inception, and continues to evolve. Today's Wi-Fi complements a diverse range of 5G scenarios.*

## **Spectrum shortfall threatens Wi-Fi functionality and innovation**

### **We encourage the European regulators to take action**