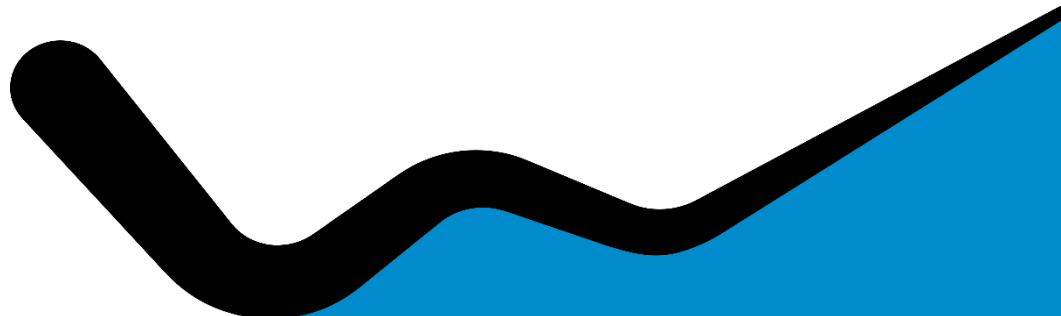


# 3<sup>RD</sup> FITCE TECHNOLOGY FORUM 2019

## INNOVATIVE SERVICES AND TECHNOLOGIES IN THE ICT SECTOR

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# Agenda

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- ❑ 5G Basic Characteristics
- ❑ 5G Services
- ❑ Income allocation until 2026
- ❑ 5G development in Europe
- ❑ Band used for 5G trials
- ❑ Wind 5G Experience
- ❑ Wind 5G Roadmap in Greece
- ❑ 5G Development Map

# 5G Basic Characteristics

5<sup>th</sup> Generation Mobile Communications (5G) characteristics defined by ITU-R in 2015



- **Ultra-high speed** (<20 Gbit/s)
- Users enjoy up to 1 Gbit/s



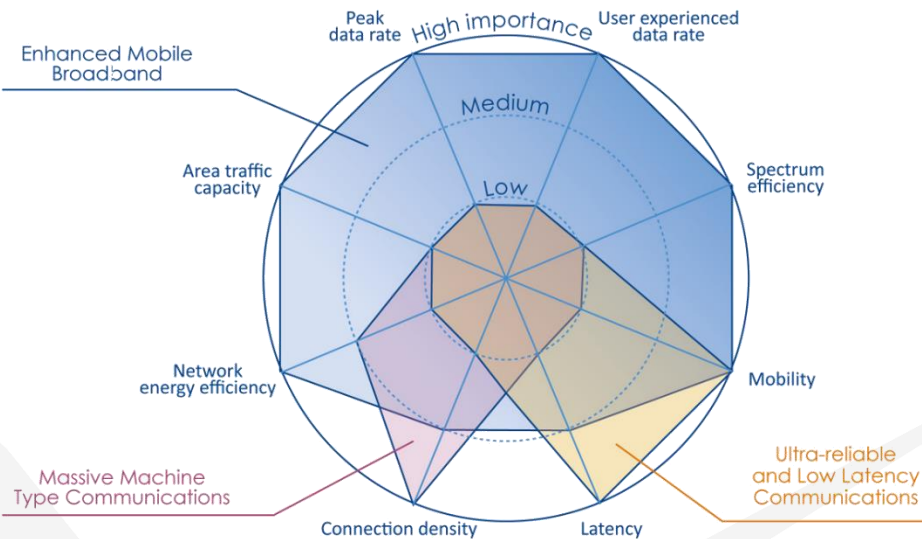
- **mMTC** - Up to 1m connected devices per Km<sup>2</sup>
- Mobile devices up to 500 km/h



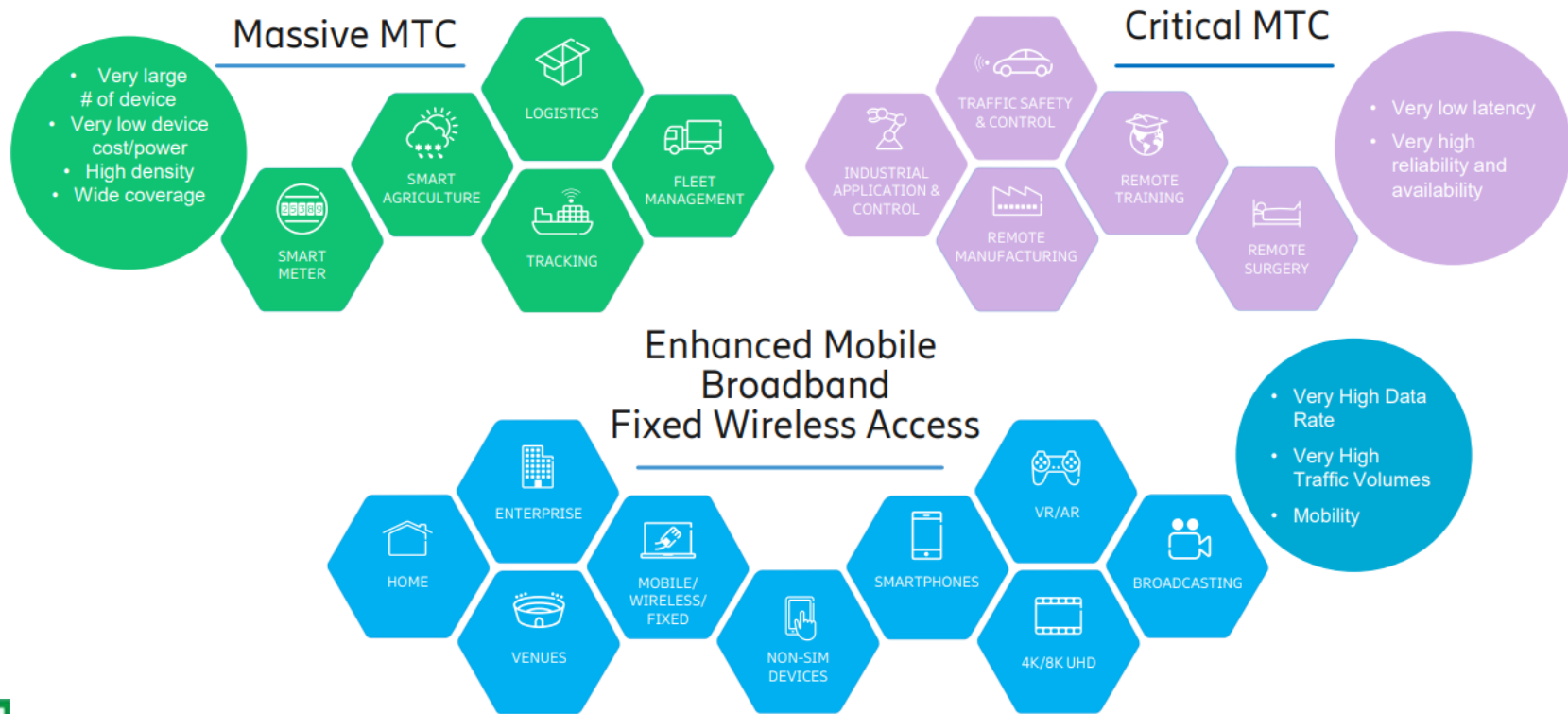
- **Energy efficient** 100 times than 4G
- Efficient broadband use, 3 or 4 times better than 4G



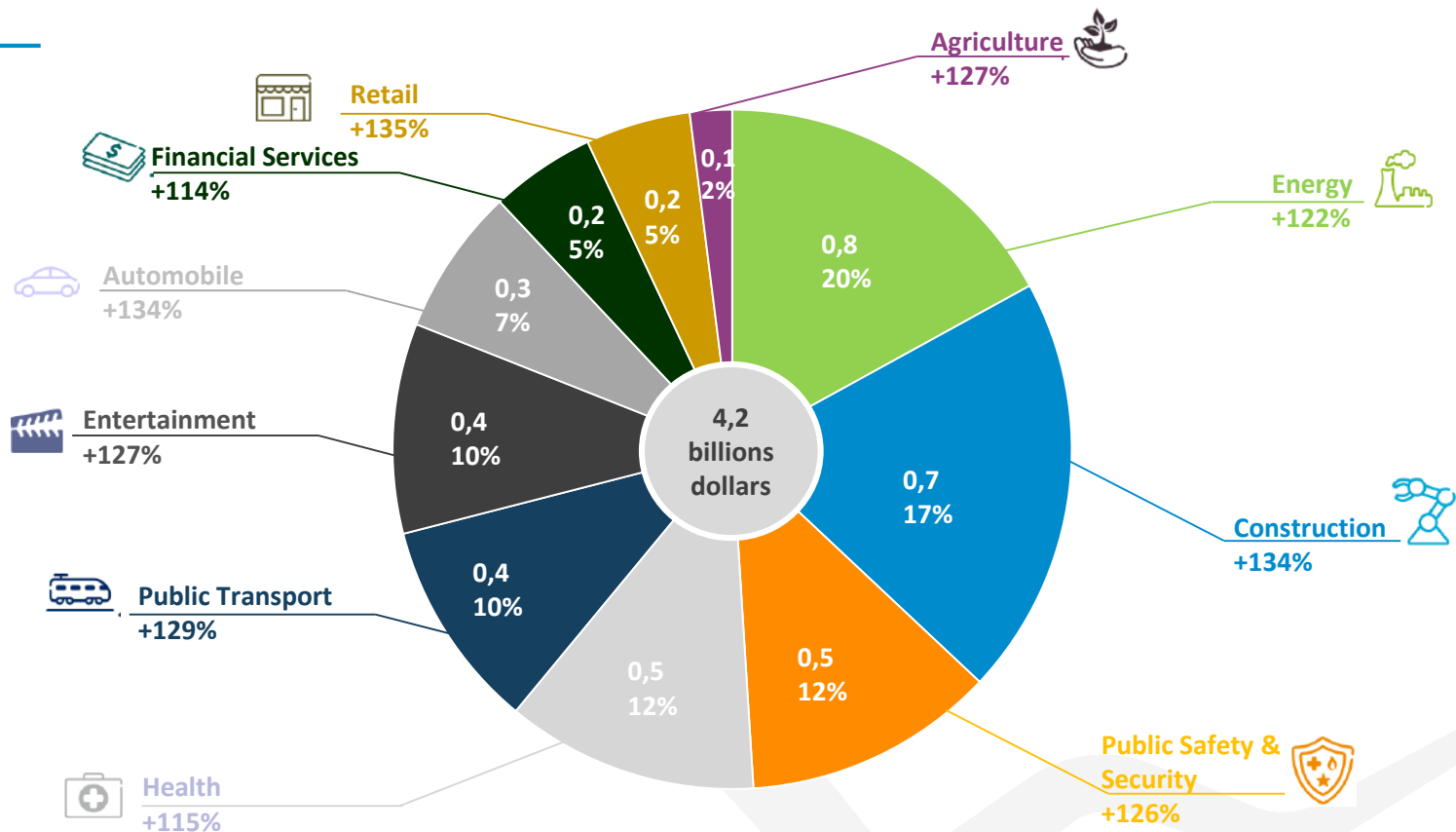
- **Super low latency** ~1 ms



# 5G Services



# Income allocation until 2026



# 5G development in Europe



## 5G Investments

106 Telecom Operators in 41 European countries invest in 5G



## Commercial launches:

20 European Operators have launched 5G

- UK (O<sub>2</sub>, Vodafone)
- Estonia (Elisa)
- Finland (Elisa, Telia)
- Switzerland (Sunrise Com, Swisscom)
- Italy (TIM, Vodafone)
- Spain (Vodafone)



## Wind Hellas invests in 5G

Developed two trial 5G networks in Kalamata and Thessaloniki

# Band used for 5G trials

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## 26 GHz



### Dense urban areas (hotspots)

- Speed up to 20 Gbit/s (eMBB)
- Coverage up to ~ 200m

## 3,6 GHz



### Urban areas

- Speed up to 3,5Gbit/s (eMBB)
- Coverage 1Km
- It will be the main use case for 5G development

## 700 MHz

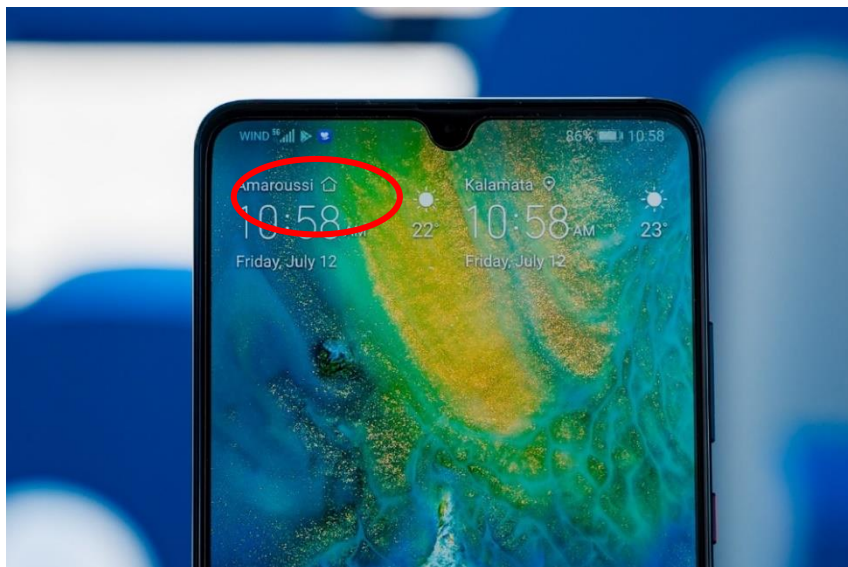


### Rural areas

- Speed ~100Mbps (mMTC)
- Several Km coverage

# Powered by Wind Hellas

## Kalamata





# Kalamata Main Square

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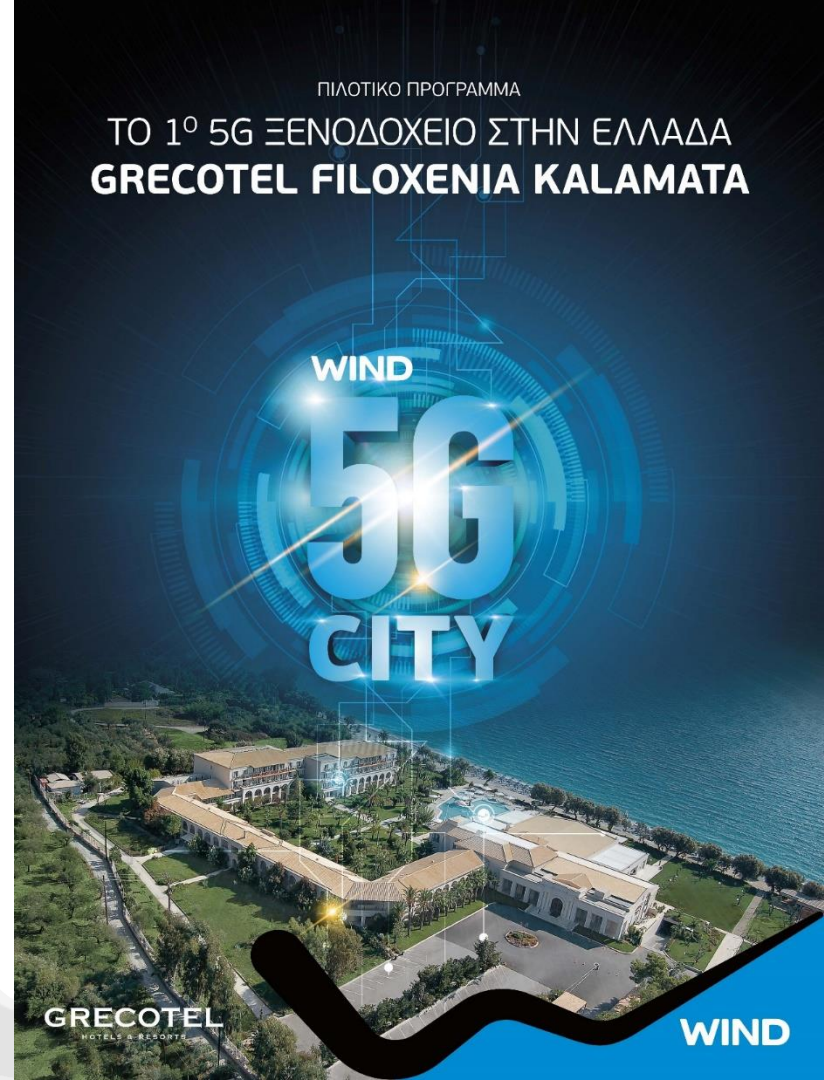
The most popular city spot, now a 5G hot spot, where everyone can experience free Wi-Fi powered by the 5G network



# Greotel Filoxenia



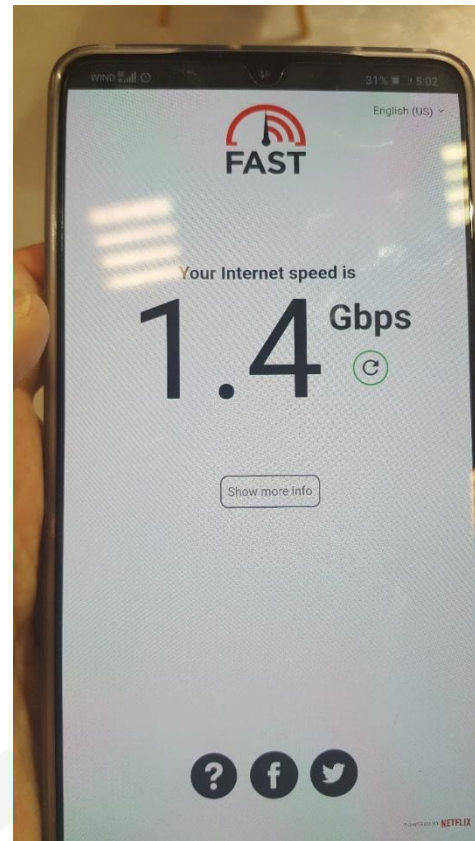
3rd FITCE Technology Forum 2019



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Thessaloniki

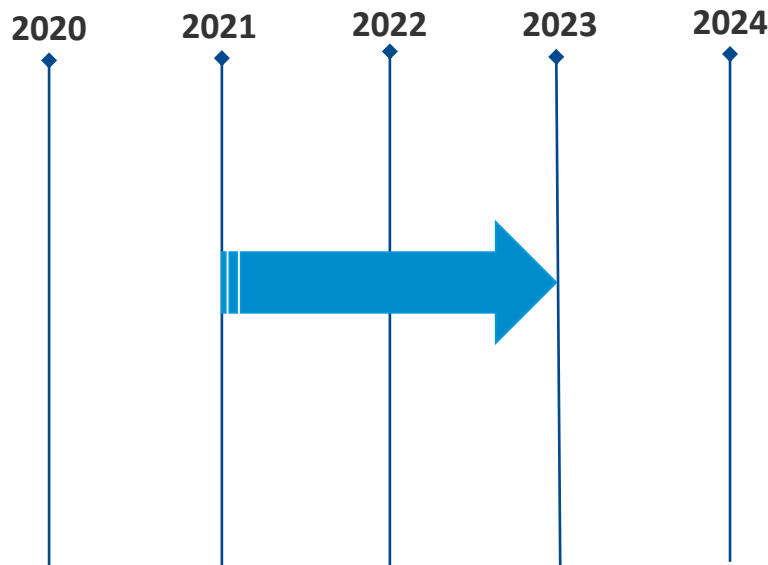
Philoxenia  
Exhibition



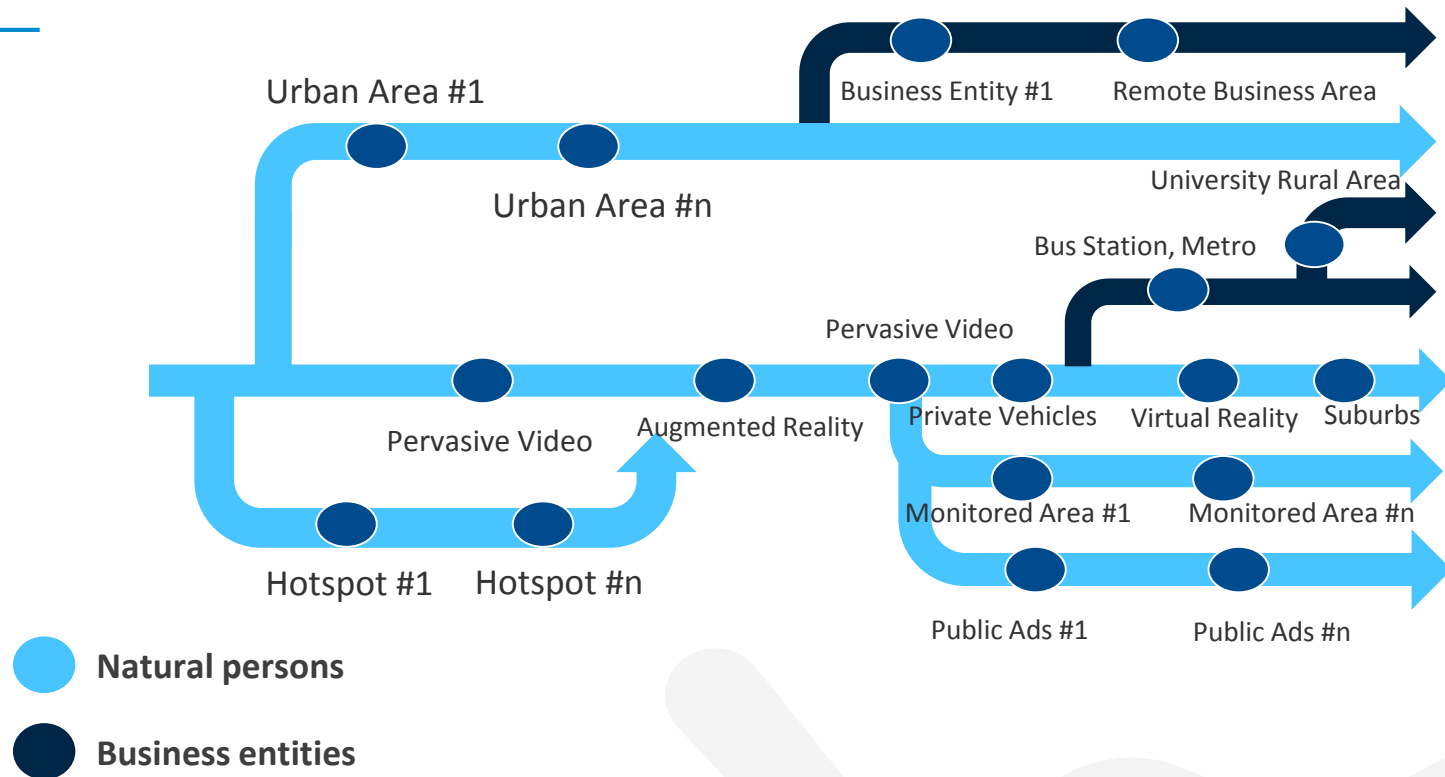


# Wind 5G Roadmap in Greece

- First commercial launches in **2021**, mainly **eMBB** and focused **on smartphones**:
  1. **5G smartphones** market penetration, **new devices** (AR / VR glasses)
  2. **Fixed Wireless Access services** (FWA) in areas where fiber optics unavailable
  3. **Define 3GPP 5G Specifications** for mMTC και URLLC and installation of the respective infrastructure
- In **2023** mature core network technology to support **network slicing**, for quick and easy access to vertical services



# 5G Development Map



*thank you!*

