

# A few thoughts about 5G deployment

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# ETNO annual economic report 2019

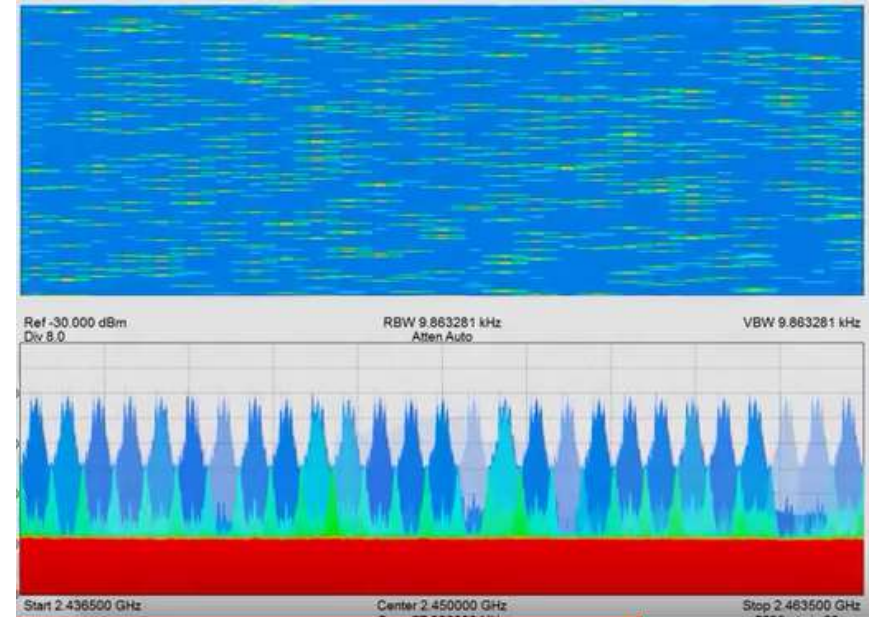
(ETNO=European Telecommunications Network Operators' Association)

- CapEx per capita for telecommunications
  - Europe: €83.2
  - Japan: €188.5      126,5% more than Europe
  - USA: €135,3      62,6% more than Europe
- Average telecoms spend per capita
  - Europe: €30.1
  - Japan: €52
  - USA: €70
- Investment capacity under pressure
  - CapEx/Revenue = 18% for Europe



# Spectrum is the lifeblood of 5G deployment

- Auctioning processes prevail in Europe
- Auctions are late in Europe
  - 6 countries have concluded for the 700 MHz band
  - 4 countries for the mmWave bands
  - 3 countries for the 3,4 – 3,7 GHz bands
- Price tag remains high
  - Since 2000 European telcos have spent
    - €110bn on 3G bands, (remember the consequences ?)
    - €37.6bn on 4G bands
    - €12.4bn so far Von 5G
  - Favourable spectrum conditions are crucial for not hampering investment incentives



# Competitive Environment

- Fierce competition, particularly in mobile
  - In Iceland we even see voice and SMS for 0 kr.
- Competition from
  - Above,
  - The sides
  - From under

