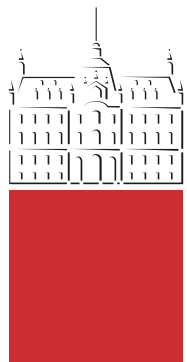


5G PPP Phase 3 Information day and Stakeholders event  
17<sup>th</sup> October, 2017 – Ljubljana – Slovenia

# Decreasing complexity and latency in 5G base-stations by optoelectronics

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sevanje in optiko

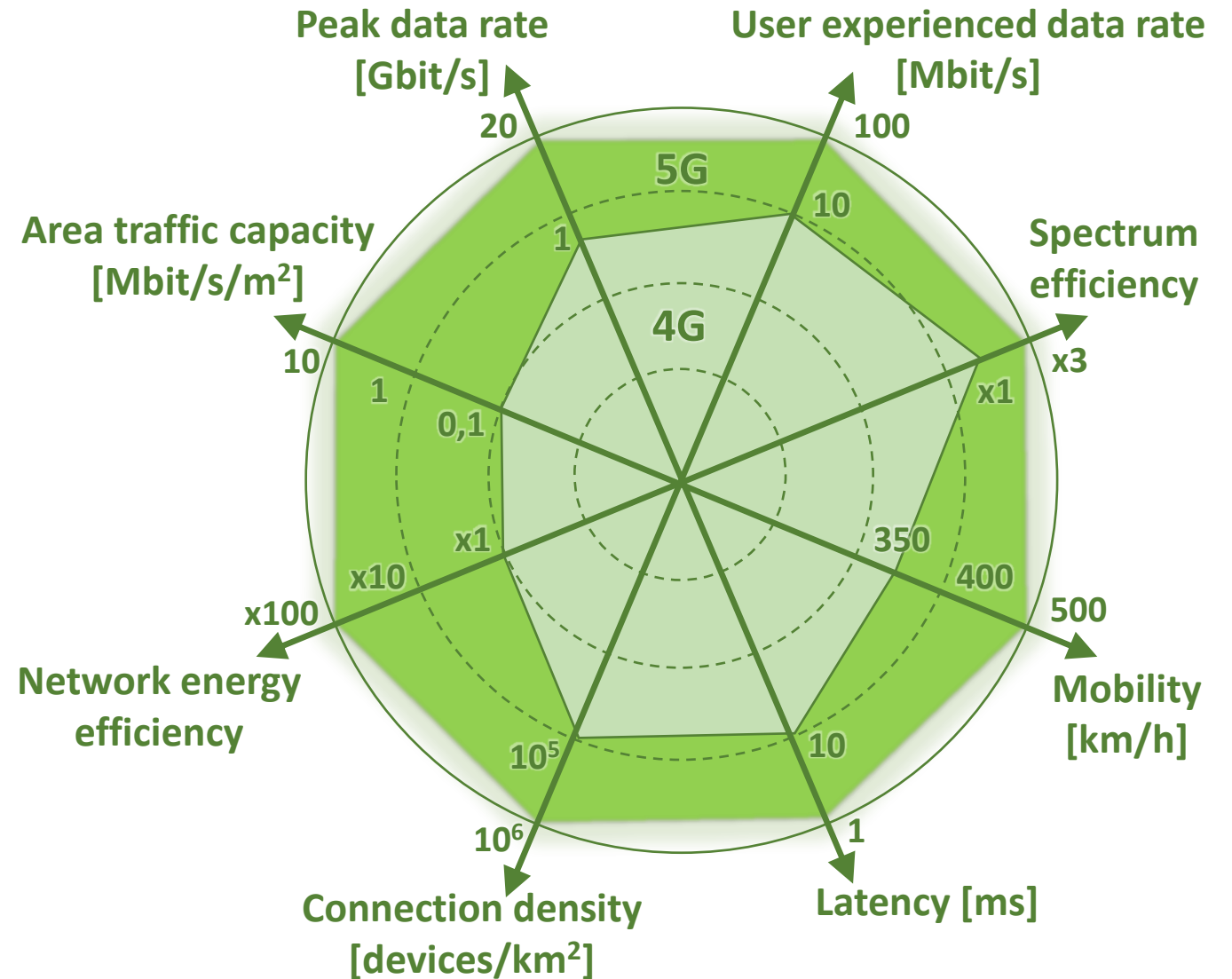
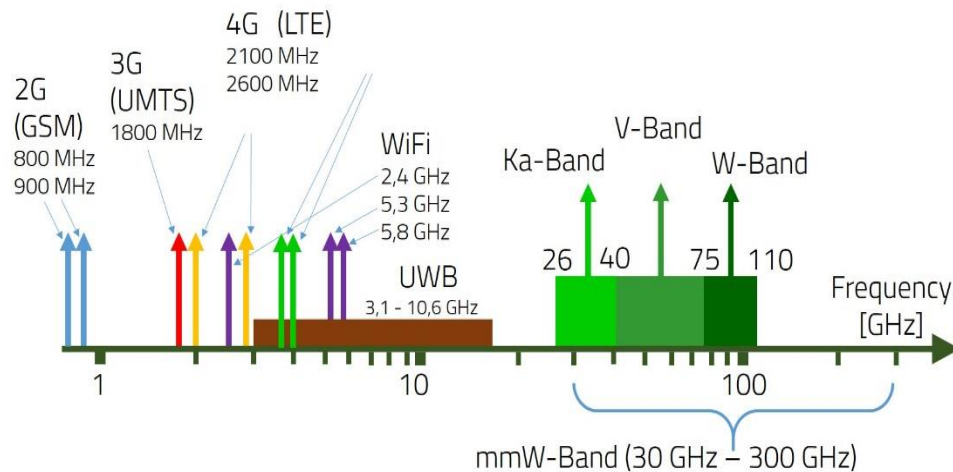


Fiber-Wireless Integrated Networks for  
5th Generation delivery

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 642355.



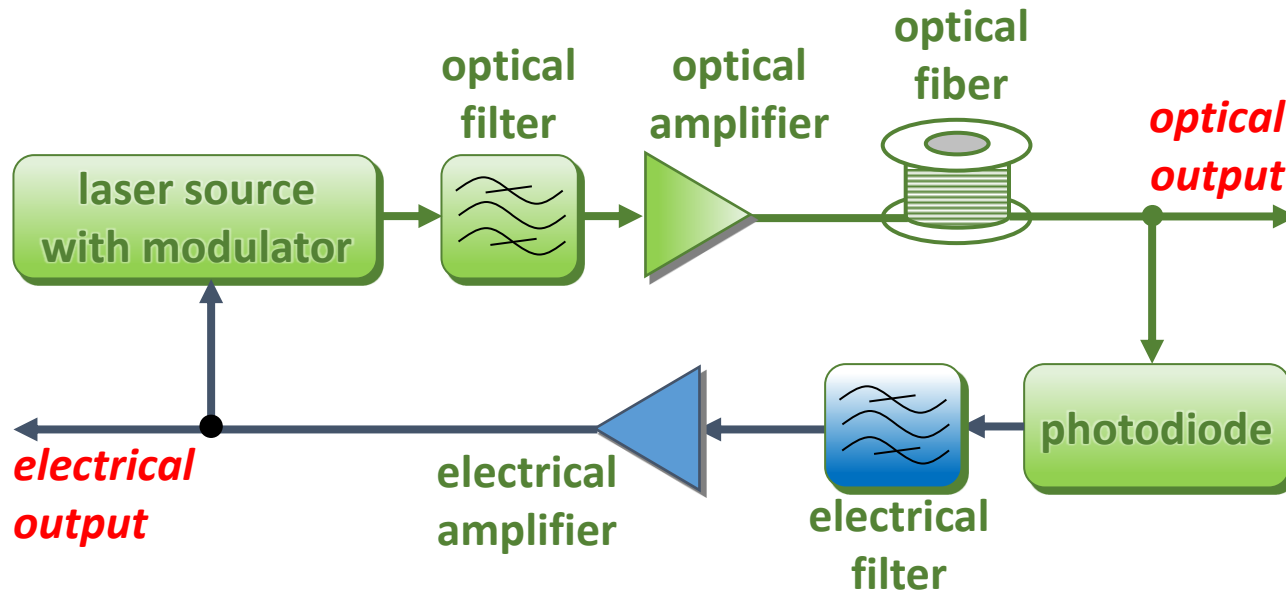
# Enhancement of key capabilities from 4G to 5G



Source: International Mobile Telecommunications (IMT) Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond. Recommendation Radiocommunication Sector of International Telecommunication Union (ITU-R) M.2083-0; 2015

# Opto-electronic oscillator (OEO)

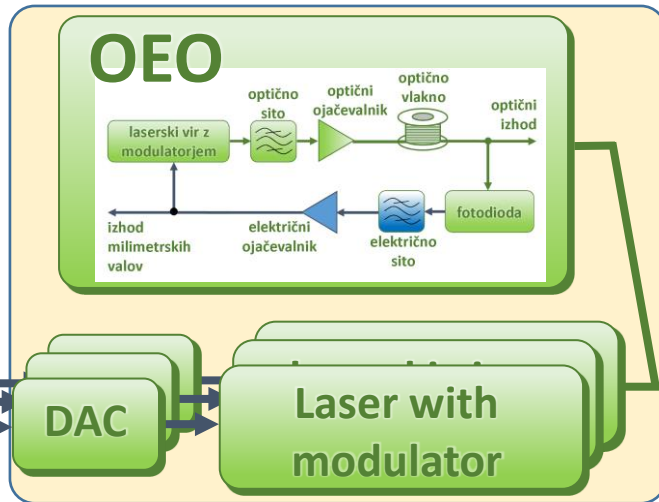
3-GHz OEO



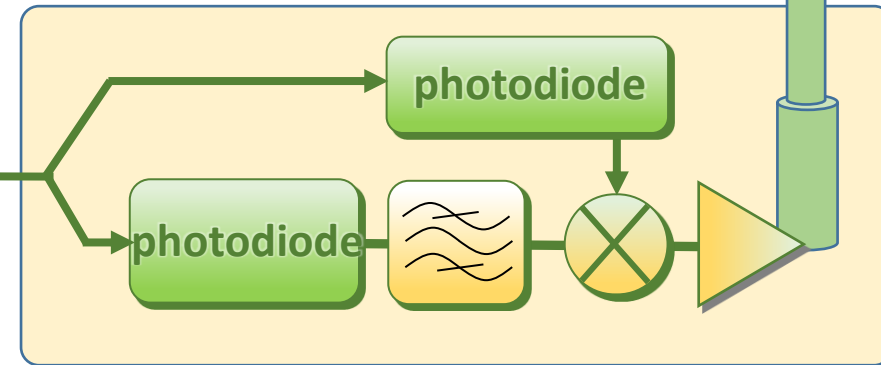
- It consists of electrical and optical components.
- It provides optical and electrical outputs simultaneously.
- Low noise oscillator with a high Quality (Q)- factor.
- The phase noise is constant with operating frequency.

# 5G System Approach with the OEO

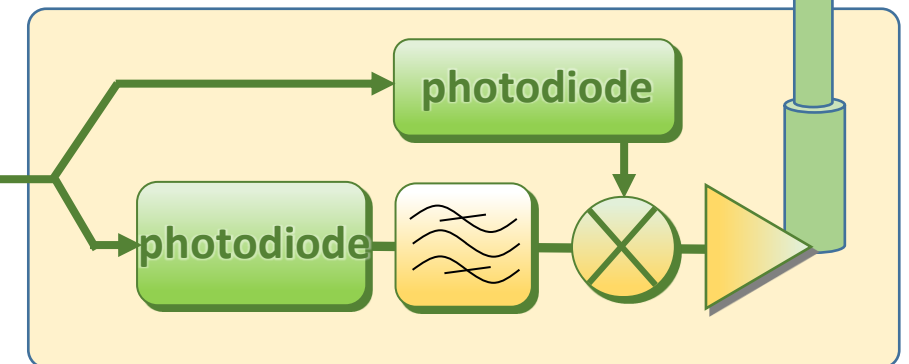
## Central Station



## Base Station



## Base Station



- Simplification of network base stations
- Many base stations are fed by one OEO
- Most efficient solution to stabilize low-phase noise oscillator
- Low latency thanks to Radio-over-Fiber (RoF) system