



# IEEE 802 EC 5G/IMT-2020 SC draft report

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# 5G SC report

# Philosophy

- **Include and describe all options**
  - That are derivatives of the four requested cases
- **Expand cost/benefit for each**
- **SC conclusion recommended**
  - **Consensus preferred on preference**
    - not required
    - Worst case straw poll preference
  - **Recommend way forward for preference (s)**

# What are “costs and benefits”?

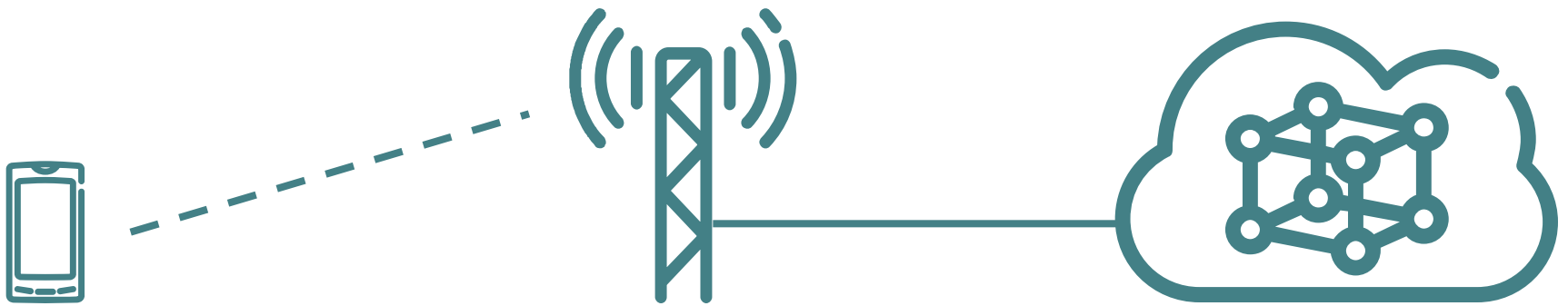
- **This is a cost-benefit analysis**
  - But without monetary cost, only relative costs
  - A quantitative pros vs cons
  - Strengths, Weaknesses, Opportunities and Threats
- **Brainstorm all costs and benefits**
  - E.g., resource cost, installation cost, operational cost, energy cost, etc.
  - Are there unexpected costs?
  - Are there unanticipated benefits?
- **Estimate value relative to a baseline**

# *Proposed* Table of Contents

- **Introduction**
- **Options Considered**
  1. **IEEE 5G**
    - Description
    - Benefits
    - Costs
  2. **IMT-2020 – single technology**
    - Description
    - Benefits
    - Costs
  3. **IMT-2020 – set of technologies**
    - Description
    - Benefits
    - Costs
  4. **IMT-2020 – external proposal**
    - Description
    - Benefits
    - Costs
- **Conclusion**

# What is 5G?

# 5G architecture



... simplified

# Will the SC define 5G?

- **There will be two contexts**
  - **IEEE 5G**
    - Some sort of description will be required
    - This may include use cases and requirements
  - **IMT-2020**
    - This is (or will be) defined by ITU-R



What are all the derivatives  
of options?

# 1. IEEE 5G

- **Description**
  - Not related to IMT-2020
  - At least simplified architecture , but likely more
  - A combination of multiple IEEE standard technologies, profiled in a single standard
- a) IEEE 802 wireless 5G
- b) All IEEE 802 5G
- c) All IEEE 5G

## 2. IMT-2020 – single technology

- **Description**
  - **Just radio interface of simplified architecture**
    - E.g., 802.11, 802.15.4, ...
  - **IMT-2020 proposal by IEEE**
- a) **Hotspot (<6GHz)**
  - i. **IEEE 802.11ax**
  - ii. **IEEE 802.11ac**
  - iii. **IEEE 802.11n**
- b) **Hotspot (>6GHz)**
  - i. **IEEE 802.11ay**
  - ii. **IEEE 802.11aj**
  - iii. **IEEE 802.11ad**
- c) **Low latency – IEEE 802.11p**
- d) **MTC – IEEE 802.11ah**
- e) **P802.15.3d**
- f) **100Gb/s THz project**
- g) **P802.15.7 REVa, Optical Wireless Communications,**
- h) **P802.15.4 family.**

# 3. IMT-2020 – set of technologies

- **Description**
  - **At least radio interface of simplified architecture , but likely more**
    - Single or multiple radio interfaces
    - Management and Control
    - Backhaul/fronthaul
  - **A combination of multiple IEEE 802 standard technologies, profiled in a single standard**
  - **IMT-2020 proposal by IEEE**
- a) IEEE 802.11**
  - i. Hotspot (<6GHz) – IEEE 802.11 ax,ac,n
  - ii. Hotspot (>6GHz) – IEEE 802.11 ay,aj,ad
  - iii. Low latency – IEEE 802.11p
  - iv. MTC – IEEE 802.11ah
- b) IEEE 802.11 with 802.1/3**
- c) IEEE 802.15**
  - P802.15.3d
  - 100Gb/s THz project
  - P802.15.7 REVa, Optical Wireless Communications,
  - P802.15.4 family.

## 4. IMT-2020 - external proposal

- **Description**
  - **Part of a complete architecture**
    - multiple radio interfaces
    - Management and Control
    - Backhaul/fronthaul
  - **A combination of IEEE 802 standard technologies with other technologies (e.g., 3GPP)**
  - **IMT-2020 proposal by external party (e.g., 3GPP)**
- a) IEEE 802.11 with LWA**
- b) IEEE 802.11 with LWIP**

# Next Steps

# Contributions requested

- **802 projects**
  - Indicate relationship to 5G
  - Indicate which options are applicable
  
- **Report content**
  - Indicate which option
  - Expand costs and benefits