

Traficom's actions towards 6G

5G Momentum webinaari: 5G tulevat ominaisuudet ja käyttötapaukset

Heidi Himmanen

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Agenda

- ► Actions by Traficom towards 6G
 - spectrum & regulation
 - cross-sectoral co-operation
- ► Regulatory aspects on spectrum
 - Mobile broadband
 - ► WLAN in 5 GHz and 6 GHz
 - ► Licensed shared access
- ► 5G/6G and diverse vertical requirements
- It's not so much about technology.

 It's a new way of thinking and acting



Actions by Traficom towards 6G

- Spectrum & regulation
 - International activities on new spectrum and terms & conditions, licencing regimes and dynamic spectrum use
 - better support for shared use and resilience to in-band and adjacent band radio interference (read: better receivers)
 - Assign spectrum for national and local use, support technology neutrality and reuse of current mobile bands
 - Grant radio licenses for trials and to dedicated spectrum for research, development and educational purposes
 - Enabling regulation for local networks, infrastructure sharing, spectrum sharing and leasing
 - Support building of fibre and passive infrastructure
 - Regulation on critical parts of communications networks (security and reliability), 5G cyber security regulations and reference architecture

- Cross-sectoral co-operation
 - Supporting and participating in RDI-projects related to wireless communication for verticals
 - Supporting development of transport automation and its digital infrastructure
 - Climate and Environmental Strategy for the ICT Sector
 - 5G webinars and newsletters by 5G Momentum
 - Participation in 6G program work of European Space Agency
 - Arranging and supporting hackathons
 - ▶ 5g Cyber Security Hacks 2019 & 2021, Galileo Innovation Challenge 2019, Drone Tournament 2021
 - Active dialogue with companies, research organisations and the public sector



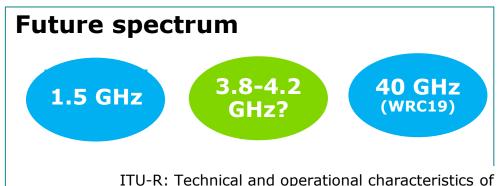
"Make it available"

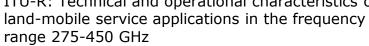
Spectrum for mobile broadband in Finland

- Three operators with nationwide coverage
 - > 99% of population with 2G, 3G & 4G
 - ~70% of households with 5G
 - New spectrum quickly into use without fiscal goals: cheaper to build, easier to plan, less congestion, more capacity
 - Unlimited data, inexpensive prices, developed networks, good coverage
- Dedicated spectrum for local networks
 - 2300 2320 MHz (20 MHz)
 - ▶ 24.25 25.1 GHz (850 MHz)

Current spectrum









WLAN in 5 GHz and 6 GHz band

- ▶ 5 GHz band
 - ▶ 5600-5650 MHz: use in UAV prohibited to protect weather radars. Implementation ongoing in Finland.
 - ▶ Limitations for use in trains in parts of band proposed.
 - ► Finland proposes national flexibility of implementation of limitations if small or no interference risk is seen.
- ▶ 6 GHz band
 - ▶ 5945-6425 MHz (200 mW indoor, 25 mW outdoor) implementation ongoing in Finland based on EC decision.
 - Protection of radio links is a national concern that lies on spectrum supervision.
 - ▶ Finland: Upper 6 GHz band should be investigated for IMT in WRC 2023.





Traficom's views on licensed shared access (LSA)

Current regulation

- ▶ Traficom grants licenses for local 4G/5G use in 2300–2320 MHz and 24.25–25.1 GHz. No LSA schemes used.
- Traficom provides a search tool for license-exempt radio microphone users in bands used for terrestrial TV.
- ▶ Regulation enables dynamic shared use of 1427–1518 MHz for electronic communication services and military applications.
- Legislation enables register notification in addition to licenced and licence-exempt use.

► Future outlooks

- Traficom supports development of shared access schemes.
- ▶ There is currently no clear demand for LSA from spectrum users.
- ▶ 66-71 GHz band was of interest for licensed/registered shared access but is an SRD-band (licence-exempt) in Europe.



5G/6G verticals – heterogeneous needs

- Smart factories
- Drones & aviation
- Cooperative, Connected and Automated Mobility
- ► Intelligent Transport Systems
- Port operations
- Maritime and smart fairways
- Logistics & cargo handling
- Smart cities and buildings
- Construction and maintenance
- ► Health and wellbeing
- ▶ Remote medical consultation

- Smart electrical grid
- ► Public safety
- Critical communications
- ► Agriculture
- ► Remote businesses
- **▶** Education
- ▶ Events and arenas
- Media and entertainment
- ▶ and many more...



Coverage: local vs. wide area vs. national



To solve...

- ► Chicken / egg problem
 - All needs of verticals are not yet known
 - Use cases need to be translated to requirements of communication systems and digital infrastructure (coverage, QoS, other KPIs)





- ▶ We need imagination and cross-sectoral creativity
 - Building **new** vertical services on **new** communication technologies (versus **new** services on **current** communication technologies)
 - 5G/6G enable **new** ways of doing **new** things (versus **new** ways of doing **current** things)
- ▶ Who will invest in the new digital infrastructure?
 - Business models & operational models (sharing, neutral host)
 - o Are the resourses available?



We all share the drive to move and communicate. Your connections are close to our heart.





Heidi Himmanen
Chief adviser, D.Sc.(Tech.)
Digital connections
Finnish Transport and
Communications Agency Traficom
E-mail: heidi.himmanen@traficom.fi
Twitter: @HimmanenHeidi

