

29 November 2019

Draft RSPG Work Programme for 2020 and beyond - Input DIGITALEUROPE

1. Spectrum Sharing – pioneer initiatives and bands

Spectrum scarcity, the growing demand for wireless connectivity, and continued technological innovation make spectrum sharing a regulatory priority, in bands where spectrum clearing and repurposing may be unsustainable, and in the higher band ranges where sharing is more appropriate given the propagation characteristics of the radio frequencies. Equally, spectrum sharing is also seen as a key enabler of certain 5G & Industry 4.0 use cases.

DIGITALEUROPE supports RSPG's effort in evaluating the future spectrum management techniques that can increase the effectiveness and efficiency in radio spectrum usage by assessing the potential for new services / usages to flourish while ensuring that coexistence with adjacent services is possible. DIGITALEUROPE's membership has been consistently working on spectrum sharing methods for the last ten years, contributing to the technical and regulatory developments of several dynamic sharing technologies.

Some initiatives on spectrum sharing are already underway in different regions, with some countries having already tested sharing mechanisms in Europe and North America, investigating the potential use of various sharing techniques on several frequency bands in all spectrum ranges.

While clearing spectrum for mobile broadband remains the preferred option for the public network providers to facilitate network management and optimization of a specific carrier's network, in some cases clearing is not feasible and therefore sharing is the most efficient option. Of special relevance is the possibility to access additional frequency bands for mobile broadband services through sharing with incumbent services that are not fully utilizing these resources geographically or spectrally.

The effectiveness of spectrum sharing to enable the efficient use of spectrum is exemplified by the licence-exempt 5 GHz bands used by government, satellite, and mobile wireless access systems. With the application of effective coexistence mechanisms between technologies both licensed assisted access systems and Wi-Fi certified devices share with each other and simultaneously protect incumbents. These devices allow fast reliable internet services to consumers and support much needed offloading capabilities for public cellular networks.

During the years several solutions for spectrum sharing have been investigated and standardized. In the Broadcast bands TVWS has been available since long, the Licensed Shared



Access (LSA) in 2.3-2.4 GHz band was made available in standards in 2016 and just recently Citizen Broadband Radio Service (CBRS) covering 3.55-3.7GHz range was released for Initial Commercial Deployment (ICD). European Telecom Standards Institute (ETSI) is currently working on an evolution of the LSA standard called eLSA addressing vertical industrial needs specifically.

On the broader topic of spectrum for vertical industries, the 3GPP has analysed use cases and defined a set of functional requirements and system parameters related to communication services for each use case in each domain and are currently in process to define specifications for non-public networks to meet vertical industry requirements and use of ITU-T assigned network identities. Several of the developed service performance requirements have an impact on preferred spectrum management approach.

2. Additional spectrum needs and guidance on the fast rollout of future wireless broadband networks

Clear drivers for further 5G traffic growth requiring additional mid-band spectrum.

While mobile data usage has grown substantially in recent years, there are clear drivers for further future 5G traffic growth requiring adequate mid band spectrum availability.

Mobile broadband and citywide video consumption: Access to mid-band spectrum is especially useful for applications which involve citywide video consumption such as audio-visual communications, in-vehicle entertainment, streaming of high definition video content at popular locations, and enhanced mobile media experiences with high quality video for augmented or virtual reality (AR/VR).

Mobile networks for safe and smart cities: A number of high-bandwidth applications are being planned for safe and smart cities, such as video surveillance, real-time text translation, video-based sensor networks and applications for public safety and emergency response personnel.

Mobile networks for Industry 4.0: Enterprises and businesses will benefit from access to networks that can support Industry 4.0 applications such as 5G-based vehicle-to-network (V2N) services, robot connectivity, "campus-wide" multimedia services, and AR overlays for remote maintenance or construction support.

Fixed wireless access (FWA): FWA can bridge the digital divide within and between markets and can increase the level of competition among operators and access technologies. With a 200 GB fixed broadband usage per month per household today, an annual growth rate of 30% will mean a usage of around 1,000 GB per month in 2025. Household sizes vary around the world, but in



most markets this means average traffic per user of more than 250 GB per month in addition to the regular mobile data usage.

National connectivity objectives: Many countries and regions have ambitious broadband coverage goals that can realistically only be met by mobile networks. In urban areas, in particular, access to mid-band frequencies will be important to meet connectivity policies in an economically viable manner.

The take up of price plans with unlimited data usage: Mobile data pricing has important consequences for usage growth, e.g. Finland is one market where unlimited pricing has been in place for a long time, and the Finnish usage (30 GB per adult per month by 2018¹ compared with the average value of 5 GB per adult per month across Europe) far exceeds any benchmarks in the region and is one of the highest in the world. Even with a conservative annual growth rate of 30%, the Finnish data usage per capita is likely to be well above 150 GB per month in 2025. As other markets move towards unlimited usage plans, it is reasonable to expect that many of these markets will also see a sharp increase in usage levels.

DIGITALEUROPE recommends the RSPG to further investigate the need for new mid-band spectrum for licensed 5G (5G-NR), in addition to what has been already harmonized for Electronic Communications Services in the European Union.

Additionally, a shortfall of license-exempt spectrum jeopardizes the provisioning of innovative wireless broadband services to European consumers and enterprises. Over the past 15 years, mobile data traffic experienced exponential growth, thanks to the availability of a relatively moderate amount of license-exempt spectrum in the 2.4 GHz and 5 GHz bands. With an installed base of 13 billion units, Wi-Fi is the most widely deployed technology operating in this spectrum, and devices using Wi-Fi are now one of the primary means by which Europe connects to the Internet.² Wi-Fi technology will continue to play an important role in next-generation networks as highlighted by the recently released Cisco VNI Mobile Report predicting that mobile traffic offloaded to Wi-Fi continues to increase with each successive mobile technology generation.³

As with any wireless technology, Wi-Fi's functionality depends on access to spectrum capacity. Wi-Fi's performance, capabilities, and its role in the European telecommunications infrastructure and economy are threatened by the lack of sufficient spectrum access. For example, the Wi-Fi Alliance commissioned a Spectrum Needs Study that analysed current and

¹ www.traficom.fi/en/news/finland-nordic-mobile-services-leader-fixed-network-falling-behind

² CISCO, *VNI Complete Forecast Highlights Tool*, Asia Pacific, Australia, Wired Wi-Fi and Mobile Growth (2016), http://www.cisco.com/c/m/en_us/solutions/service-provider/vni-forecast-highlights.html (select "Australia" from the "Asia Pacific" drop-down menu and expand "Fixed/Wi-Fi." ("CISCO VNI")

³ See above CISCO VNI report.



future Wi-Fi spectrum requirements.⁴ Based on projected growth in demand for Wi-Fi, by 2025, up to 1500 MHz of additional mid-band spectrum may be needed to sustain the Wi-Fi ecosystem. Another example of license-exempt spectrum shortfall for WLAN was undertaken by Qualcomm⁵ which concluded *“To enable future WLAN-type application and usage scenarios, regulators should plan for around 1280 MHz of unlicensed spectrum centered around the 5 GHz band for use by unlicensed technologies”*. Some of this additional capacity for Wi-Fi will be addressed as a result of the European Commission Mandate for the 5925-6425 MHz band.

DIGITALEUROPE shares the RSPG’s view that 5G services are the most important evolution of wireless broadband in the near future and we welcome the consideration of additional harmonised spectrum to be available by 2025/2030. We expect the RSPG to consider identification of additional harmonised spectrum resources utilizing innovative spectrum access solutions that promote a suite of licensing and sharing solutions that delivers both capacity, coverage, and flexible access.

Future expansion of 5G will depend on the timely supply of adequate spectrum with reasonable capacity and propagation characteristics to match the growing data usage around the 2025-2030 period. The benefit of off-load from 5G licensed networks on to license-exempt networks also needs to be taken into consideration with regards to the need for new mid-band spectrum.

Licensing schemes of future harmonised bands should also be considered by RSPG in its work. While exclusive individual nationwide usage rights are preferred in order to allow network operators to fully optimize spectrum resources both in the construction of their network and in the offering of services to consumers, sharing can be considered as an alternative if it can provide adequate flexibility of spectrum usage based on capacity and coverage and certainty that spectrum will be available to support network operator offerings. This is in addition to the collaborative benefits from a license-exempt approach as seen in existing bands being used for WAS/RLAN as well as future bands that are likely to become available in Europe from 2020 onwards.

DIGITALEUROPE recommends the RSPG to further investigate the need for new mid-band spectrum for license-exempt used (WAS/RLAN/5GNR-U), in addition to what has been already harmonized for Electronic Communications Services in the European Union.

As 5G networks are built on existing 4G footprint, DIGITALEUROPE is of the view that no 5G-specific additional coverage obligations, especially linked to high frequency bands (3.4-3.8 GHz,

⁴ Wi-Fi Alliance, *Spectrum Needs Study*, Feb. 2017, <https://www.wi-fi.org/downloads-registered-guest/Wi-Fi%2BSpectrum%2BNeeds%2BStudy0.pdf/33364> (“Spectrum Needs Study”).

⁵ <https://www.qualcomm.com/media/documents/files/a-quantification-of-5-ghz-unlicensed-band-spectrum-needs.pdf>



26 GHz), should be considered by the Member States. Obligations to do so come with additional unjustified costs ultimately reflected in high prices for the consumers.

In line with provisions in the EECC, enhancement of harmonised spectrum policies among Member States is essential to increase predictability and encourage investments in 5G networks. Aspects linked to harmonised licence duration and transparent licence renewal conditions and timely release of new spectrum bands in a consistent manner among the Member States are to be considered if Europe wants to keep pace in the 5G race. To this end, auction design and reasonable spectrum fees should be considered across RSPG members to support the targets set by the 5G Action Plan.

Regarding the EMF-related issues, DIGITALEUROPE draws attention to the fact that several activities on EMF exposure measurement are being already engaged by IEC/CENELEC with ITU-T and ITU-D repeating the processes and the messages associated. To this end, DIGITALEUROPE sees no benefits for RSPG to engage in providing guidance on EMF exposure measurements. However, we can see benefits for a joint RSPG-BEREC collaboration on the BEREC's initiative to provide consistent positions and fight end-user misinformation regarding EMF health effects in the context of 5G and mobile technologies in general.

As misinformation on EMF has been fuelling unjustified concerns while negatively impacting network rollout in Europe, DIGITALEUROPE sees benefits of a coordinated effort of EU administrations to proactively support consistent science- and evidence-based communication on 5G and EMF at EU and national/local level, in line with the internationally accepted recommendations of WHO/ICNIRP. Such a coordinated campaign on EMF-related issues should aim at a better understanding of the compliance of general public exposure to radiofrequency limit values and removing artificial barriers in the rollout of 5G networks.

DIGITALEUROPE sees benefits to RSPG's proposal on high-level workshops but suggests addressing the entire industry – network operators, verticals, manufacturers – to provide opportunities for open discussions and better collaboration while providing RSPG with inputs from all stakeholders.

3. Role of Radio Spectrum Policy to help combat Climate Change

DIGITALEUROPE agrees with the importance of the radio spectrum for the development of the electronic communications and broadband as basis of the digitization of the society and industries, in line with the EU priorities and policies. We equally acknowledge the importance of the climate change topic at European level and the climate-neutral target for Europe is 2050.

Any working item that RSPG considers in relation with the spectrum policy aspects (closely) and the efforts of ensuring climate-neutrality should consider developments that are already

ongoing.

DIGITALEUROPE considers that it would be desirable for RSPG to strengthen links with global standardization organizations (such as but not limited to ETSI, ITU) having working groups addressing environmental aspects that have undertaken work covering areas related to climate change (assessment methods, energy efficiency of systems, etc.). Any concrete actions that RSPG will consider recommending should be aligned with proposals coming from this type of organisations.

4. “Good offices” to assist in bilateral negotiations between Member States

According to the EECC (Article 28 paragraph 2) Member States shall cooperate with each other and, where appropriate, through the RSPG in the cross-border coordination of the use of radio spectrum in order to prevent from cross-border harmful interference.

“Good offices” is a process to facilitate assessing and solving cross-border interference issues between specific EU Member States to facilitate the conclusion of bi- and/or multi-lateral agreements. Moreover cross-border interference can also result from a lack of harmonisation in some details of the regulatory frameworks between administrations, which could happen even in bands harmonised by a Commission and / or an ECC Decision.

The synchronisation of TDD networks is one of these examples, that took a great importance recently, when several regulators, in order to ensure the co-existence between their national TDD networks, defined preferential frame structures in order to avoid inter-networks interference. Diverging constraints (existence of legacy TDD systems or not; technologies used by legacy; type of network owners with potentially different business cases; different time references) and separate national decision processes are expected to impede the definition of a common frame structure at EU level. This would result in mutual interference for some deployment scenarios.

DIGITALEUROPE supports the preparation by RSPG, either within the scope of the work on “Good Offices”, or as a separate work item, of a Report that would provide administrations and network / systems owners guidance on solutions that would suppress, or at least considerably reduce the risk of interference between TDD networks across the borders.

CEPT is finalizing a revision of ECC Recommendation (15)01: *“Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, 3400-3800 MHz”* that considers this issue for the 3.6 GHz TDD band. RSPG could base its deliverables on this material, develop guidelines, propose solutions based on concrete cases resulting from already existing – or under preparation – national regulations, and evaluate their impact on network performance.



5. Peer review and Member States cooperation on authorisations and awards

DIGITALEUROPE sees benefits in better collaboration between Member States in regard to spectrum awards and authorisations through the “Peer Review” platform and workshops. While we understand that the peer review process is subject to be formalised by 21 December 2020, it will stay entirely closed to the industry. DIGITALEUROPE would like to emphasize the importance of transparency and encourages the RSPG to continue organising stakeholder workshops on awards as well future publishing of annual reports on awards experiences and best practices.

6. WRC

The RSPG already prepared an Opinion for WRC-19 in support of the European Council in its preparation of the Council Decision for WRC-19. While CEPT did not support for further studies to identify spectrum bands for IMT the WRC-19 agreed RESOLUTION COM6/1 (WRC-19)⁶ including the following agenda items for the WRC-23:

“1.2 to consider identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution COM6/2 (WRC-19);”

According to RESOLUTION COM6/2 (WRC-19)⁷:

“...resolves to invite ITU-R...

2 to conduct and complete in time for WRC-23 the sharing and compatibility studies¹, with a view to ensuring the protection of services to which the frequency band is allocated on a primary basis, without imposing additional regulatory or technical constraints on those services, and also, as appropriate, on services in adjacent bands, for the frequency bands:

- 3 600-3 800 MHz and 3 300-3 400 MHz (Region 2);
- 3 300-3 400 MHz (amend footnote in Region 1);
- 7 025-7 125 MHz (globally);
- 6 425-7 025 MHz (Region 1);
- 10 000-10 500 MHz (Region 2),

“1.3 to consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with Resolution COM6/3 (WRC-19);”

⁶ RESOLUTION COM6/1 (WRC-19) – “Agenda for the 2023 world radiocommunication conference”

⁷ RESOLUTION COM6/2 (WRC-19) – “Studies on frequency-related matters for the terrestrial component of International Mobile Telecommunications identification in the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz, and 10.0-10.5 GHz”.



“1.4 to consider, in accordance with Resolution COM6/4 (WRC-19), the use of high altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level;”

“1.5 to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-15);”

While DIGITALEUROPE supports the needs for studies to consider IMT identification in the band listed under WRC-23 Agenda Item 1.2, DIGITALEUROPE notes that there are no WRC-23 agenda items considering additional spectrum for license-exempt usage and requests RSPG take the need for licensed and license-exempt spectrum into consideration.

The Opinion should first identify those agenda items that would have potential impact on EU policies, whether they have been proposed or not by CEPT. Other proposals should be discussed in the Opinion, like the removal of the aeronautical exclusion from mobile bands identified for IMT, the consideration of HIBS in IMT bands and the identification of new bands for IMT, especially below 24 GHz, in order to satisfy the future needs for broadband connectivity for the 2025-2030 period.

7. Additional work item on benchmarking

Further, we suggest an additional work item on benchmarking. The European Electronic Communications Code (EECC) invites the Commission to publish on a regular basis benchmark studies and, as, appropriate, other guidance with regard to best practices for the assignment of radio spectrum, the assignment of numbering or the granting of rights of way. The EECC also states that, where necessary, the Commission shall be assisted by Member States, NRAs, BEREC and the RSPG. Consequently, the RSPG should undertake a benchmarking activity and suggest, as examples of studies:

- Benchmarking of regulatory requirements associated to national licensing processes for 5G bands (e.g. the 3.5 GHz band),
- Benchmarking of licensing fees.

8. Summary of DIGITALEUROPE Proposals

- DIGITALEUROPE recommends the RSPG to further investigate the need for new mid-band spectrum for licensed 5G (5G NR), in addition to what has been already harmonized for Electronic Communications Services in the European Union.
- DIGITALEUROPE recommends the RSPG to further investigate the need for new mid-band spectrum for license-exempt used (WAS/RLAN/5G NR-U), in addition to what has been

already harmonized for Electronic Communications Services in the European Union.

- DIGITALEUROPE sees benefits to RSPG's proposal on high-level workshops but suggests addressing the entire industry – network operators, verticals, manufacturers – to provide opportunities for open discussions and better collaboration while providing RSPG with inputs from all stakeholders.
- DIGITALEUROPE considers that it would be desirable for RSPG to strengthen links with global standardization organizations (such as but not limited to ETSI, ITU) having working groups addressing environmental aspects that have undertaken work covering areas related to climate change (assessment methods, energy efficiency of systems, etc.). Any concrete actions that RSPG will consider recommending should be aligned with proposals coming from this type of organisations.
- DIGITALEUROPE supports the preparation by RSPG, either within the scope of the work on "Good Offices", or as a separate work item, of a Report that would provide administrations and network / systems owners guidance on solutions that would suppress, or at least considerably reduce the risk of interference between TDD networks across the borders.
- While DIGITALEUROPE supports the needs for studies to consider IMT identification in the band listed under WRC-23 Agenda Item 1.2, DIGITALEUROPE notes that there are no WRC-23 agenda items considering additional spectrum for license-exempt usage and requests RSPG take the need for licensed and license-exempt spectrum into consideration.