DSA Submission – EU Call for Evidence for An EU initiative on virtual worlds: a head start towards the next technological transition

The Dynamic Spectrum Alliance (DSA) appreciates the opportunity to contribute to the European Commission's efforts to develop a forward-looking vision on emerging virtual worlds and share our considerations to this reflection through the call for evidence.

Today's digital economy is already witnessing the use of virtual technologies, particularly in the area of gaming but also increasingly in the business environment through use cases such as virtual reality (VR) for training, digital twins, IoT, etc. In our view, virtual technologies can play a key role in accelerating the broader uptake of digital applications in Europe and therefore contribute to Europe's path towards its 2030 Digital Decade targets. Nevertheless, this uptake may well be gradual, as the technologies that required to achieve a fully fletched and mature metaverse are still being developed and will need some time to be deployed. The development of these new virtual worlds will require new technologies and devices, protocols, partnerships, innovations, and discoveries to work, opening up a range of new opportunities for the European economy and society.

The DSA welcomes the European Commission's approach towards virtual worlds, as it will continue to support and build on the innovations already underway in Europe's digital economy and ultimately aims at enabling the digital ambitions of the Europe's 2030 Digital Decade Policy Program.

In the last years we have seen the stabilization or even slow-down of traffic on telecommunication networks as currently established (data traffic growth on fixed lines has been declining since 2015 -with a glitch during the pandemic- and was below 20% in 2021[1], and mobile traffic growth rates have slowed down to below 10% in Western Europe[2]). It could be expected that current FTTH and mobile networks, as well as those that are already being deployed at this moment, should for the foreseeable period, be able to deal with the workloads on digital networks."

In practice, we see today that the absolute majority of data in Europe goes over fixed broadband through Wi-Fi. Mobile networks only deliver traffic equivalent to 5% of the fixed network traffic and Wi-Fi handles over 90% of fixed network traffic, i.e., the vast majority of

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[1] Patterns of fixed traffic growth, 2021, Communication Chamber, please see here: http://static1.1.sqspcdn.com/static/f/1321365/28472102/1633446868743/Internet+Traffic+2021+10+v2.pdf

[2] Ericsson, https://www.ericsson.com/491da6/assets/local/reports-papers/mobility-report/documents/2022/ericsson-mobility-report-q4-2022.pdf.

internet traffic in Europe[3]. VR content is currently consumed over fixed networks through Wi-Fi and will continue to be so in the near term. The same will apply to augmented reality (AR) devices, which are likely to follow the same connectivity strategy adopted by mobile phones, i.e., modulate the QoS depending on the available connectivity. In particular, AR devices are expected, as happens today with mobile devices, to massively offload their traffic onto Wi-Fi networks when the user is at home or the office.

The DSA praises Europe's great progress in deploying fibre networks, which in DSA's opinion provide more than enough capacity to supply demand for virtual worlds in the foreseeable future. However, we identify a clear risk of a connectivity bottleneck likely to emerge in the Wi-Fi segment. For European citizens, businesses, and industry at large to be able to benefit from the virtual world use cases, in-house gigabit connectivity (Wi-Fi) should be ensured.

This would mean giving priority to making available the spectrum necessary for the next generation of Wi-Fi (Wi-Fi 6/6E and 7) to unlock its potential and support the development of virtual worlds. Europe should strongly consider keeping the upper 6GHz band (6425-7125 MHz) open for licence-exempt spectrum usage. Greater usage of licence-exempt spectrum for indoor connectivity will also further help the telco operators to limit capital expenditure of mobile networks as gigabit Wi-Fi networks can be used to offload mobile traffic in indoor environments or in public Wi-Fi hotspots.

Paying policy attention to enabling gigabit Wi-Fi will also contribute to more sustainable virtual worlds. According to a 2020 ARCEP Report, 70-80% of network emissions are due to the access network and fibre networks are ten times more energy-efficient than mobile networks[4]. Therefore, a combination of fibre and Wi-Fi is a greener option for indoor connectivity than 5G. In this same vein, considering that energy efficient windows, with a high attenuation effect, are expected to become the standard in Europe, indoor coverage will be provided in a much more energy-efficient way from inside, via fibre and Wi-Fi connectivity, than from outside via 5G connectivity, as the latter requires additional base stations and power to compensate the building attenuation.

We appreciate that EU Member states, based on a Commission's proposal, will start soon working in an EU common position to the upcoming World Radiocommunication Conference 2023 (WRC-23), where, among other things, the future of the upper 6GHz band will be discussed.

The EU is well positioned to lead on the development of AR/VR technologies supporting virtual worlds. As AR/VR devices will require Wi-Fi connectivity as one of their primary

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[3] DSA white paper "How do Europeans connect to the internet? 2022".
https://dynamicspectrumalliance.org/wp-content/uploads/2022/06/DSA-WhitePaper-How-do-Europeans-connect-to-the-Internet.pdf
[4] Achieving Digital Sustainability, ARCEP, 15 December 2020.
https://en.arcep.fr/uploads/tx_gspublication/achieving-digital-sustainability-report-dec2020.pdf.

enablers, the EU should not underestimate the potential of Wi-Fi to allow virtual worlds to develop and take up.

Following a "no change" scenario as a result of the WRC-23 proceedings, meaning that EU would decide not to identify this band as an International Mobile Telecommunications (IMT) band, would allow Europe to better position itself to deliver on the ambition of gigabit connectivity at a fixed location. A "no change" position will send the right signal to the market that the EU is still considering the best future use of the band, producing minimum distortions while the EU takes its time to come to a decision.

Following such approach will avoid the emergence of a broadband connectivity "bottleneck" in the last-meter to the end-user as enough licence-exempt spectrum could easily be made available to handle the current and future indoor connectivity demands and further foster innovation in areas such virtual worlds, amongst others.