Consultation response form

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Consultation title	Discussion paper: Meeting future demand for mobile data
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Question	Your response
We invite interested parties to consider the initial analysis we set out in this document and to let us know their own views.	Confidential? – N The Dynamic Spectrum Alliance (DSA)[1] respectfully submits these comments in response to Ofcom's discussion paper on "Mobile networks and spectrum - Meeting future demand for mobile data" (the Discussion Paper). DSA commends Ofcom for its efforts to identify future demand for mobile services and explore how mobile networks may need to evolve to meet that demand, particularly in light of technology developments that can help spectrum to be managed more effectively. DSA shares Ofcom's goals of ensuring efficient assignment and use of scarce radio frequencies while making spectrum available for both existing and new wireless services in order to facilitate competition, enhance connectivity, and promote investment. DSA believes that providing additional spectrum access options through use of new spectrum management tools, such as dynamic shared access systems, will help meet future mobile data traffic demands, benefit competition, create conditions for innovation, and spur more rapid deployments of wireless networks and services. We agree with Ofcom that

[1] The DSA is a global, cross-industry, not for profit organization advocating for laws, regulations, and economic best practices that will lead to more efficient utilization of spectrum, fostering innovation and affordable connectivity for all. Our membership spans multinationals, small-and medium-sized enterprises, as well as academic, research and other organizations from around the world all working to create innovative solutions that will benefit consumers and businesses alike by making spectrum abundant through dynamic spectrum sharing. A full list of DSA members is available on the DSA's website at www.dynamicspectrumalliance.org/members

	clearing frequency bands of current users is a lengthy, time-consuming process that involves assessing costs, benefits and risks, along with an evaluation of the ongoing value to the UK of existing uses of the frequencies relative to the potential value of alternative uses. As an alternative to clearing, DSA encourages Ofcom and other telecommunications regulators to consider spectrum sharing approaches that allow multiple technologies, services, and deployment types to share and maximize efficient use of frequencies. In addition to considering lower power or localized use cases to enable sharing, we recommend that regulators leverage dynamic shared access systems to maximize operational flexibility for new services as well as maximizing spectrum efficiency. DSA further recommends that telecommunications regulators worldwide fully consider licenced, licence-exempt, and lightly licenced options when allocating spectrum to wireless broadband services. Licenced and licence-exempt spectrum bands will both play important and complementary roles in the delivery of advanced wireless services, including mobile data. DSA notes that in Ofcom's Connected Nations 2021 Report, released in December 2021, fixed broadband data growth was reported to be 40% over the 2019-2021 period, growing from 319 GB per connection per month to 453 GB per connection per month. Virtually all of that traffic is carried on Wi-Fi networks attached to the broadband facility. When defining its strategy for meeting mobile data demand, DSA advises Ofcom to consider the important role licence-exempt technologies, specifically Wi-Fi, play in

	providing connectivity for mobile devices. Most of the traffic to and from mobile devices is transferred over Wi-Fi, rather than over the cellular network. Indeed, as noted in paragraph 3.24 of the Discussion Paper, "In fact, most of the time, mobile devices are connected to Wi-Fi, which in large part reflects the availability of Wi-Fi at indoor locations such as home, work, and school." The Discussion Paper further notes that, up through the present, the growth in demand for mobile services has largely been met through several means, including by the offloading of mobile data traffic onto fixed networks via Wi-Fi.[2] Yet, what the Discussion Paper does not include is the potential of Wi-Fi offload in the lower 6 GHz band, with certain rules changes, as a potential mechanism for meeting the growing demand for mobile data. More broadly, the Discussion Paper might have considered the how making the entire 1200 MHz of the 6 GHz band available for license-exempt use would presumably increase mobile data offload and better meet the demand for mobile data traffic, particularly in dense urban sites. The fact is, without sufficient spectrum for Wi-Fi, under the appropriate regulatory framework, mobile network deployments will have to become much denser to cope with the ever-increasing amounts of traffic, resulting in significantly increased capital and operational expenditures for MNOs. While making a sufficient amount of spectrum available for mobile use is important, the characteristics and requirements of local connectivity must be considered. Studies showed that people in developed countries spend more than 90% of their time indoors. In line with that,

[2] Paragraph 2.12.

	more than 90% of data traffic is consumed or generated indoors. Providing indoor coverage from outdoor cellular base stations is problematic in several respects including increased energy consumption of both base station and client, reduced performance, and service cost. Wireless intra-network traffic would require an additional indoor wireless network or multiple cellular network termination points. Typically, the final link between the access network and the user ('local connectivity') is typically established via Wi-Fi. For users to be able to enjoy the benefits of future gigabit access networks, this final link must be adequately resourced, i.e., it must be able to utilize a sufficiently large amount of spectrum. This does not only apply to very high bandwidth applications such as AR/VR/XR which require large channels widths but also to lower bandwidth, high-density use cases such as IoT with thousands of communicating devices. Studies published by the WFA[3] show that in order to extend the data rates provided by future gigabit access networks to the user, WiFi needs an additional 1.2-1.8 GHz of spectrum. DSA appreciates that by opening the 5925-6425 MHz band for licence-exempt use, Ofcom has already made a portion of the required spectrum available. We further appreciate Ofcom's recent efforts to explore how the upper 6 GHz band could be made available for Wi-Fi operations. We look forward to working with Ofcom to refine its proposed framework to introduce new services into the upper 6 GHz band.

[3] https://www.wi-fi.org/news-events/newsroom/additional-unlicensed-spectrum-needed-to-deliver-future-wi-fi-connectivity.