


Your response

Question	Your response
Question 1: Do you have comments on the overall approach to the review?	<p>Confidential? – N</p> <p>We largely and broadly agree with the approach outlined by Ofcom to this review. Specifically, we believe it is very good to promote licensing to fit local and national services in order to also decrease the pressure on carrier's investment especially for 5G where the amount of investment needs to increase significantly; also, really key the sharing spectrum and promoting via neutral hosting solutions which again help to increase presence and coverage beyond the operators' investment. Clearly the support for these streams need to be supported not only by OFCOM, but also at 360 degrees with coordination with Government to avoid OFCOM provides a tool that is not realistic (investment and also incentives to go towards these directions – difficult to implement services which then are not taken up by the public operators or by other entities, creating a segmentation which is excessive and not efficient, versus a competitive market very dynamic and healthy)</p>
Question 2: Have we captured the major trends that are likely to impact spectrum management over the next ten years?	<p>Confidential? – N</p> <p>Yes, the major trends seem to have been captured.</p> <p>However, it would be good to mention briefly about technologies that will be redundant or no longer available in the near future thus freeing up / relinquishing spectrum for future use. As we move into more matured 5G era and potentially 6G era in the next ten years, spectrum used for legacy mobile technologies like 2G and 3G will be either re-farmed to 4G or made available for other use. Similarly, spectrum currently used for Public Safety network (TETRA UHF) could be available for other uses once all the Public Safety network</p>

	<p>moves to LTE (ESN) or future technology, e.g., 5G at higher frequencies.</p> <p>It comes as a natural and logical consequence that OFCOM needs to continue to coordinate and monitor international activities in order to ensure that the spectrum allocation is always mainly aligned internationally such that interoperability and high volume can be achieved, avoiding localised variations (unless absolutely necessary or required)</p>
<p>Question 3: Could any of the future technologies we have identified in Annex 6, or any others, have disruptive implications for how spectrum is managed in the future? When might those implications emerge?</p>	<p>Confidential? - N</p> <p>These could have implications depending on when these are launched, and the spectrum allocated to it although it may be too early to pre-empt at this stage. It looks most likely that the 6G spectrum may be around 90GHz and above so may not be of huge concern at this time since most of the spectrum is used for space science.</p> <p>Perhaps, in the shorter term (next 5 years) we would need to focus on 5G applications. Currently, 5G NSA is predominantly focussed on eMBB (enhanced mobile broadband) with higher throughput as a key driver and not bandwidth hungry, however, once we move into 5G SA with MMTC (massive machine to machine communication) and uRLLC (ultra-low latency communication) type applications, we will see a massive explosion of devices and applications including but not limited to IOT, Edge Services, e-health, drones, Fixed Mobile Convergence, Network Slicing, Wholesale, Private Networks, Industry 4.0. The bandwidth allocated to them (either in sub 6GHz and or mmWave) currently may seem high at this stage but there is a potential that this may need to be reviewed once the 5G eco-system becomes more matured. We may either need to allocate more bandwidth or look at new spectrum.</p>
<p>Question 4: Do you agree that there is likely to be greater demand for local access to spectrum in the future? Do you agree with our proposal to consider further options for localised spectrum access when authorising new access to spectrum?</p>	<p>Confidential? – N</p> <p>We agree as highlighted in the first question, but it must be clear that it is strictly on the basis that product ecosystem in such bands is matured and readily available (applies to both</p>

	<p>radio units and devices) since spectrum is an existing one and available nationally (to national licensee who have no plans to utilise or deploy in that specific / local region). Businesses, enterprises and specialised services who want to operate in a geographically limited area can do so by launching their services in a much easier and faster way. Typically, costs of such matured products are also reasonable and not on the high-end thereby not putting burden on the businesses/enterprises.</p> <p>For launching services in a ‘new spectrum’ it is always challenging, especially for smaller businesses/enterprise, due to immature ecosystem whereby products in the new spectrum are not easily available, higher product costs and longer TTM (time to market).</p>
<p>Question 5: Do you agree with the actual and perceived barriers identified for innovation in new wireless technologies, and our proposed ways of tackling those?</p>	<p>Confidential? - N</p> <p>We do strongly support the effort of OFCOM to remove perceived barriers to innovation and new wireless technologies, as it is happening today with OpenRAN for example. So in general we are behind the idea that innovation should be supported, including providing licence exemptions where necessary and on the basis that organisations have undergone due process.</p>
<p>Question 6: Do you agree with Ofcom’s proposals to improve our outreach and reporting activities, and spectrum information tools?</p> <ul style="list-style-type: none"> • Are there additional ways that Ofcom could better engage with existing and future users and providers of wireless communications? • Please explain any specific areas where you believe more or better provision of information could provide value to stakeholders 	<p>Confidential? – N</p> <p>Yes.</p> <p>Ofcom seems to have captured most of the engagement method and sharing of information tools.</p>
<p>Question 7: Do you agree that it is important to make more spectrum available for innovation before its long-term use is certain? Do you have any comments about our proposed approach to doing this?</p>	<p>Confidential? – N</p> <p>Yes, however, we would suggest that it is done in a controlled way depending on the type of services / use cases / applications that apply for utilising the spectrum. We believe that the</p>

	control should be mainly in the direction of supervising and coordinating efforts across the additional spectrum used in this category
<p>Question 8: Do you agree that it is important to encourage spectrum users to be ‘good neighbours’ to ensure more efficient use of the spectrum? Do you agree with our proposals to:</p> <ul style="list-style-type: none"> a) increase realism in coexistence analysis at a national and international level? b) encourage spectrum users to be more resilient to interference? c) ensure an efficient balance between the level of interference protection given to one service and the flexibility for others to transmit? <p>Do you have any comments on which of these will be the most important?</p>	<p>Confidential? – N</p> <p>We have no strong views on this point and broadly agree with the suggestions put forward by Ofcom.</p>
<p>Question 9: Are there any other issues or potential future challenges that should be considered as part of this strategy?</p>	<p>Confidential? – N</p> <p>Not at this stage. We believe Ofcom have captured most of the relevant issues and challenges.</p>
<p>Question 10: Do you agree that continued use of our existing spectrum management tools (as set out in sections 4-7) will be relevant and important for promoting our objectives in the future, in light of future trends?</p>	<p>Confidential? – N</p> <p>Yes.</p>
<p>Question 11: Is there anything else we should be considering doing, or doing differently, to promote our objectives?</p>	<p>Confidential? – N</p> <p>We would suggest that Ofcom has specific industry wide sessions, dialogues and workshops with the stakeholders on an ongoing and continuous basis with regards to promoting your objectives related to spectrum management so that even if information is not passed on or accessible to relevant stakeholders, they are aware of the ongoing developments. The sessions and dialogues could be on one-on-one basis with a specific industry (e.g., mobile operators and telecom vendors; space industry; public sector) or these could be across the board. Our preference for such sessions / dialogues would be to hold for a specific industry as it makes it much more</p>



efficient and meaningful. We are assuming that the current Covid / pandemic situation will be eased out and the industry can get together for attending such sessions in the near future. In the interim, such sessions could also be held on-line.